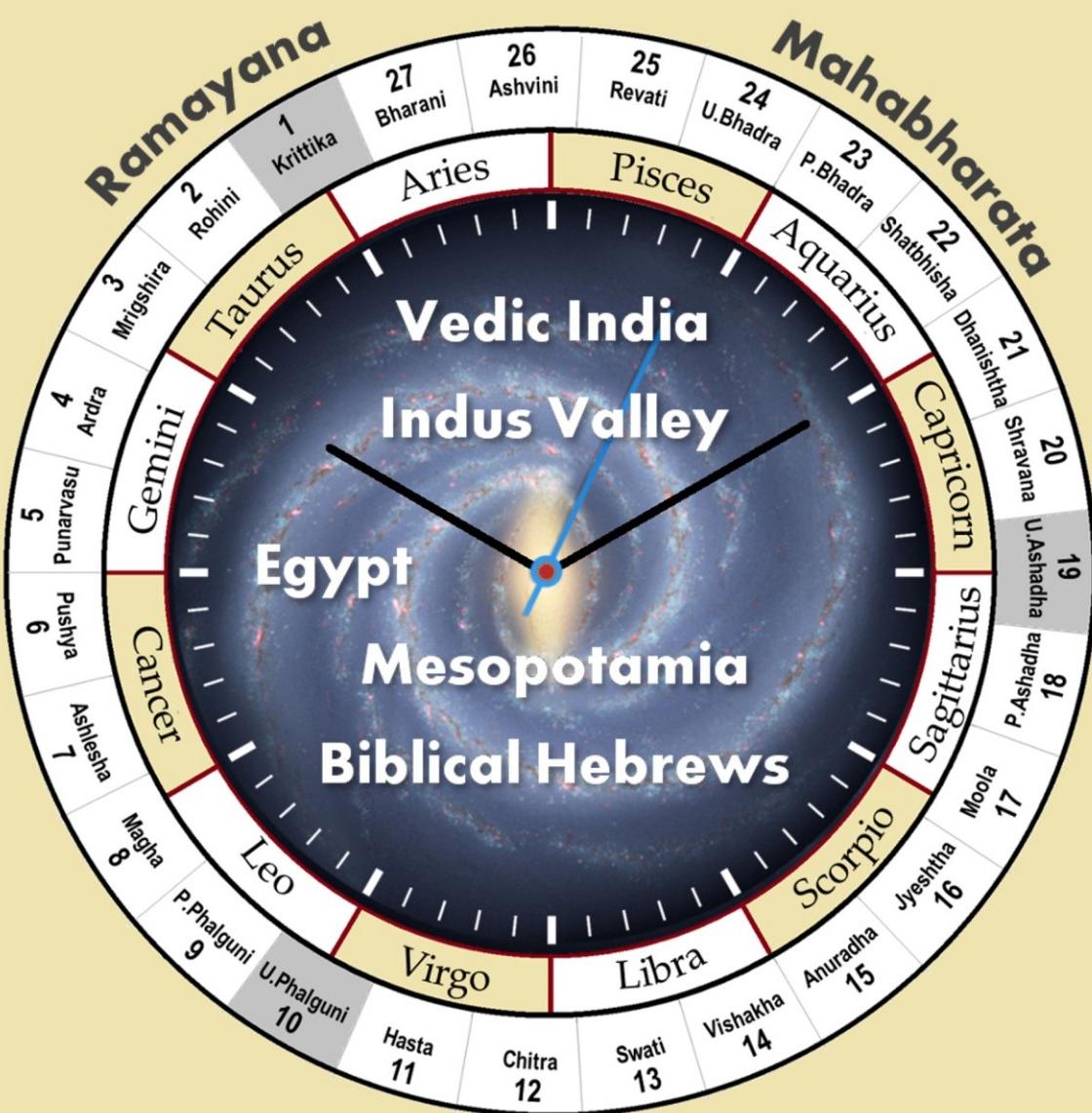


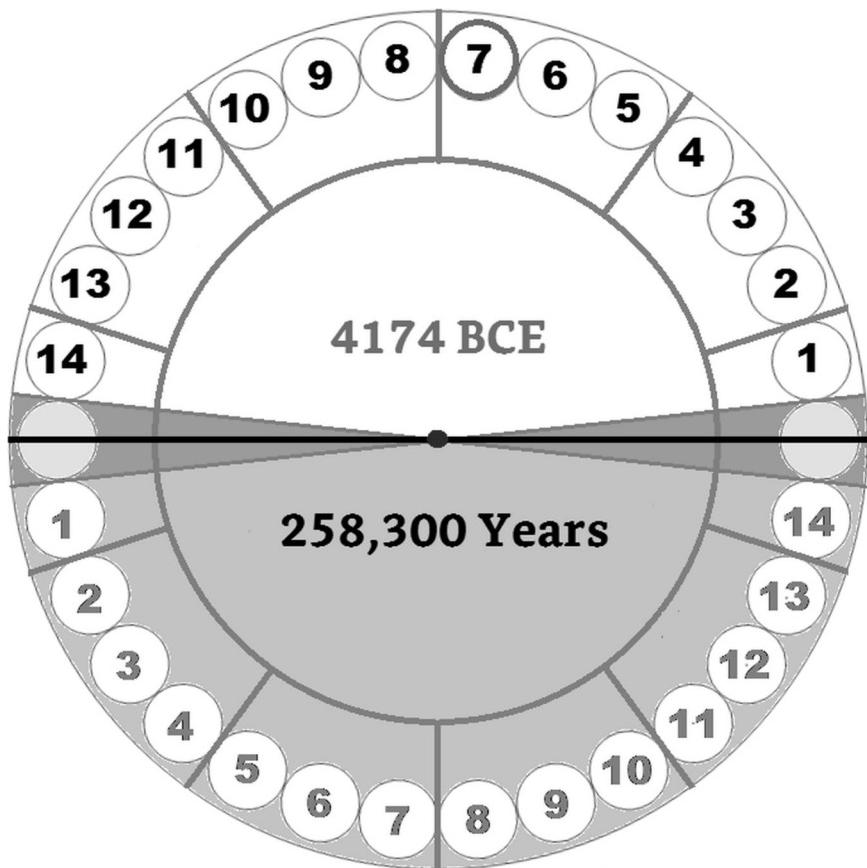
The Science of Time and Timeline of World History



SUNIL SHEORAN

**The Science of Time
and
Timeline of World History**

The Science of Time *and* Timeline of World History



SUNIL SHEORAN

eBook Edition v.1.0.0.1
2017

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Prayer



नमस्कृतं महादेवं शिवं सत्यं योगेश्वरम् ।

I salute the great god Śiva, embodiment of truth & ultimate Yogī.

नमस्कृतं उमादेवीं महामाया महत्कारणम् ॥ 1

I salute Umā, the great illusory power & first principle of creation.

नमस्कृतं देवनायकं पावकं मयूरवाहिनम् ।

I salute the general of gods, the fiery one who rides a peacock.

नमस्कृतं अग्रदेवं सुमुखं व्यासायलेखकम् ॥ 2

I salute the first-worshipped, of beautiful face & the writer of Vyāsa.

नमस्कृतं नारायणं विष्णुः जगत्धारिणम् ।

I salute Nārāyaṇa, the Viṣṇu, who holds the universe in himself.

नमस्कृतं भास्करं आदित्यं जगत्पालकम् ॥ 3

I salute the Sun god, born of Aditi, who sustains the universe.

नमस्कृतं स्वयंभुवं आदिपुरुषं प्रजापतिम् ।

I salute Svayambhuva who existed in the beginning, a lord of men.

नमस्कृतं सरस्वतीं वागीश्वरी हंसवाहिनीम् ॥ 4

I salute Sarasvatī, the goddess of speech who rides a white swan.

नमस्कृतं व्यासदेवं ज्ञानमूर्तिं नारायणम् ।

I salute Vyāsa, embodiment of all knowledge & Nārāyaṇa himself.

नमस्कृतं नमस्कृतं नमस्कृतं पुनः पुनः ॥ 5

I salute, salute and salute, again and again.

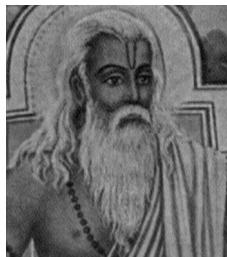
Epigraph



"Study Sanskrit, but along with it, study western sciences as well. Learn accuracy, my boys, study and labor so that the time will come when you can put our history on a scientific basis. For now, Indian history is disorganized. The histories of our country written by English writers cannot but be weakening to our minds, for they talk only of our downfall. How can foreigners, who understand very little of our manners and customs, or of our religion and philosophy, write faithful and unbiased histories of India? Naturally, many false notions and wrong inferences have found their way into them. Nevertheless, they have shown us how to proceed making researches into our ancient history. Now it is for us to strike out an independent path of historical research for ourselves, to study the Vedā and Purāṇā and the ancient annals (Itihāsa) of India, and from them make it your life's sadhana (disciplined endeavor) to write accurate, sympathetic and soul-inspiring histories of the land. It is for Indians to write Indian History. Therefore, set yourselves to the task of rescuing our lost and hidden treasures from oblivion. Even as one's child has been lost does not rest until one has found it, so do you never cease to labor until you have revived the glorious past of India in the consciousness of the people. That will be the true national education, and with its advancement, a true national spirit will be awakened. When the real history of India will be unearthed, it will be proved that, as in matters of religion, so in fine arts and sciences, India is the Primal Guru of the whole world."

Svāmī Vivekānanda

Dedication



Dedicated at the holy feet of the great sage *Vedavyāsa*, the ocean of all knowledge and the knower of all, the one who compiled and reorganized the *Vedā*, dictated the *Purāṇa Saṃhitā* and composed the *Mahābhārata* and without whose grace, this book could never have seen the light of the day.

Note: *Vedavyāsa* (*Kṛṣṇa Dvaipāyana*), the son of sage *Parāśara*, was born from the womb of *Kālī / Satyavatī*, a fisherwoman, who later became the queen of King *Śāntanu* of Lunar line. The birth of *Vedavyāsa* took place when the 3rd Yuga of the 27th *Dvāpara-Yuga* had just elapsed. This means 3219 years (26*120+48+36+3*5) after the start of present age (4174 BCE): in the *Saṃvatsara* of 955 BCE, probably on the first day (Dec 14, 956 BCE) of its first month of *Māgha*, a day of *Śrāvāṇa Nakṣatra*:

Bhāgavat Purāṇa 1.4.14:

द्वापरे समनुप्राप्ते तृतीये युगपर्यंते ।
जातः पराशराद् योगी वासव्यां कलया हरेः ॥
dvāpare samanuprāpte tṛtīye yuga-paryayate |
jātaḥ parāśarād yogī vāsavyāṁ kalayā hareḥ ||

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Preface

नास्ति विद्या समं चक्षुः नास्ति सत्य समं तपः ।
नास्ति राग समं दुःखं नास्ति त्याग समं सुखम् ॥

*There is no revealer like the knowledge; no penance like truthfulness;
There is no sorrow like desires; no happiness like their abandonment.*

With the blessings of the great sage *Vedavyāsa*, the elusive elephant of ancient Indian history, hitherto thought to be largely mythological, has now been seen in its full glory and it looks most wonderful. The great conundrum of the timeline of Indian history, with its uncertain periods of *Rāmāyana* and *Mahābhārata* and its intriguing time cycles of *Yugā* and *Mahā-Yugā*, has been finally solved conclusively. From this point on, there will be no more puzzles for the Indian history, the Vedic time cycles and the periods of *Rāmāyana* and *Mahābhārata* as all these have been established conclusively. This book will help the world see the ancient Indian History, as well as the timeline of ancient World History, in its true light.

After suffering a personal setback, early in my 37th year, I was in a dull phase of my life wherein nothing good seemed to happen in any walk of life. With nothing better to do, all my attention was turned to the divine. From being given to a vainglorious lifestyle earlier, I took to daily worship of the Sun god as per the ancient *Ārya* code and started leading a more balanced life, as advocated by the four-fold *Sanātana Dharma*¹. I studied the ancient Indian texts of the *Mahābhārata*, the *Rāmāyana* and the *Purāṇa* in detail, although all these were known to me from my childhood.

¹ The four principal objectives of life laid out in the *Sanātana Dharma* (the religion of Vedic *Āryā*) are: *Dharma* (Knowing the Duty and the right from wrong by taking proper education in childhood), *Artha* (earning money rightfully to sustain a family), *Kāma* (fulfillment of desires) and *Mokṣa* (attaining liberation from the cycle of birth and death).

Subsequently, it occurred to me to locate the exact periods of these epics and validate their astronomical events because nobody seemed to know these periods despite their historicity. So, I worked on locating these dates. Almost an entire year was thus spent by me in studying and dating the epics of *Mahābhārata* and *Rāmāyaṇa* and the still anterior Indian history.

During this time, I read the most papers and books already published on the dating of *Mahābhārata* and the *Rāmāyaṇa* but found almost all of these papers to be an exercise in futility since they relied only on a few planetary-position verses to the complete exclusion of some well-known historical events such as the flooding of *Hastināpura*, the capital of the *Kuru* kingdom, which took place few generations after the *Mahābhārata* war. During the excavations conducted in 1951-1952 at the *Hastināpura* site by Prof. B.B. Lal, the director of the A.S.I. (*Archaeological Survey of India*), a flooding zone pertaining to this event was found and dated to 8th century BCE. None of the aforementioned books and papers took into account this extremely important finding and most of them looked like plain guesswork to me.

I then came across the book “*Holy Science*” of *Svāmī Śrī Yukteśvara Giri* wherein, in its introduction, it is stated that the *Mahā-Yuga*² scheme consists of 12,000 years and that the *Mahābhārata* war occurred near about 750 BCE. This date broadly corroborated the event of *Hastināpura* flooding and it seemed to match some of the puzzle-some astrological events mentioned in the *Mahābhārata* text. So, I was inclined to accept *Śrī Yukteśvara*’s dating of *Mahābhārata* war if not for my failure in applying the same logic to the dating of *Rāmāyaṇa* because, as per *Śrī Yukteśvara*’s theory, *Dvāpara-Yuga* was of 2400 years which would put the time of *Rāma* at least 2400 years before 750 BCE which is not possible because only 16-17 odd generations, as provided in *Matsya Purāṇa*,

² *Mahā-Yuga* ~ 120 Years (48 Years of *Kṛta-Yuga*, 36 Years of *Tretā-Yuga*, 24 Years of *Dvāpara-Yuga* and 12 years of *Kali-Yuga*), as detailed ahead.

are stated to have existed between the two time periods of *Rāmāyaṇa* and *Mahābhārata*. Also, if we consider the fact that *Rāma* is stated to have been born in 24th *Tretā Yuga* and that the *Mahābhārata* war is stated to have occurred in 28th *Dvāpara Yuga*, it would put the date of *Rāmāyaṇa* at least 48,000 years (4 *Mahā-Yugā*) before the time of *Mahābhārata*. It would be quite absurd to even think that 17 generations could span 48,000 years. So, finally, Śrī Yukteśvara's theory was also rejected as incorrect due to its inability to explain the time of *Rāmāyaṇa* and I was back to square one in my search of the truth.

Then, one day, after spending few agonizing months of continuous deliberation on the ancient Indian history, an extremely negative idea, borne of great despair, arose in my mind that perhaps the whole *Mahābhārata* was just a great fabrication of the sage *Vedavyāsa*, just the same as *Rāmāyaṇa* could be of the sage *Vālmīki*, and that I should probably just junk the whole *Sanātana Dharma* thing because *Dharma* has its basis in truth and when the truth can never seem to be found, which intelligent men would continue to lend themselves to falsity. So, during my daily evening prayer that day, I sincerely prayed to *Vedavyāsa* to show me the light if there was any truth to the whole matter, otherwise I was just about done with him and his epic, forever. In the night at about 3 am, when I was again taken up by this cause and when I again prayed inside to *Vedavyāsa*, my agonized heart instantly felt a great peace dawned on me for some time and then it flashed in my mind to try the calculations in another manner. This was a very distinct feeling and I knew that my prayer had been finally answered. Guided by that inspiration, calculating back and forth, I was finally looking at all the correct answers³. Many other related

³ At this, I felt greatly repentant in ever having doubted *Veda Vyāsa* and his wisdom in first place, for he was not only an accomplished seer proficient in all Vedic sciences but was also a great historian. Who else could have accomplished the great work of compiling the *Vedā* and composing the entire Indian history in the form of *Purāṇa Samhitā*?

discoveries followed within next 2-3 days. These historical discoveries are so profound that they will forever alter the course of Indian history and literature. The ancient Indian history that is presently considered as plain mythology will be accorded great respect henceforth, for the seeds of entire world history lie in the ancient Indian history⁴. Only when I had completed writing the Indian history, it occurred to me to also analyze the ancient history of the West (Mesopotamia/Egypt etc.) because its timeline and origin were not clear. Many western people take Sumer to be their earliest origin and think that the Sumerians originated from the Aliens. As we will read ahead, both these ideas are untrue.

Utmost care has been taken to verify all given dates with a scientific outlook which means that all stated truths, known directly or indirectly, local or global, should be verifiable in their original context and should stand the test of reason and logic:

युक्तियुक्तं वचो ग्राह्यं बालादपि शुकादपि ।
अयुक्तमपि न ग्राह्यं साक्षादपि बृहस्पतेः ॥

Words conjoined with reason should be accepted even if coming from a child or a parrot. But those devoid of reason should not be accepted, even if said by Brhaspati (the teacher of the Gods) himself.

⁴ It's mostly the agenda-driven Indologists and imperial historians such as Max Muller who have relegated the ancient Indian history to being a mere myth. But the West is not to be blamed for this entirely since the most Indians themselves readily accept utter blind beliefs arising from the careless mistranslation of Vedic texts and, while they enjoy listening to their history, they don't care much for its scientific validation. It's quite unbelievable as to how a *Kali-Yuga* of 12 years time-span has come to mean a staggering 432,000 years over time and still has managed to find acceptance in India. Over the last 2500 years or so, this ghost of *Kali-Yuga*, an age used to signify a relative increase of evil activities, has instilled such fear in the hearts of Indians that they believe the *Kali-Yuga* to be never ending. In my assessment, it will take the average Indian another 10-20 years to understand with conviction that a *Kali-Yuga* is actually only of 12 years.

केवलं शास्त्रं असृत्य न कर्तव्यो विनिर्णयः ।
युक्तिहीन विचरेतु धर्महानि: प्रजायते ॥

*One should not make decisions solely on the authority of the scriptures;
For ideas devoid of reason and logic cause the destruction of Dharma (duty).*

As also Śrī Yukteśvara Giri, a great Indian sage born in late 19th century, mentions in his commentary on the *Bhagavad Gītā*:

“Studying the scriptures with blind belief causes the growth of restlessness, pride, vanity, unnecessary arguments and anger, which eventually leads to loss of knowledge and the stupor of ignorance.”

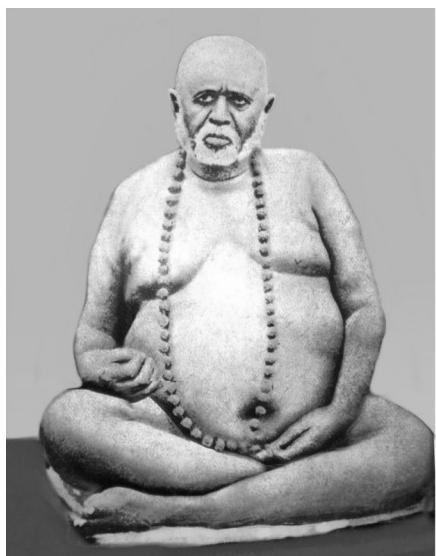
:

“Therefore, it is not appropriate to study the scriptures by solely trusting the reputation of their creators without relying on logic, because sages can make mistakes⁵ as well. Addressing this, philosophical authorities have said that if the words of even a child are logically sound, then it’s our duty to receive it and deem it worthy; but if the talk of Brahmā himself is unscientific, then it should be considered worthless chaff and abandoned.”

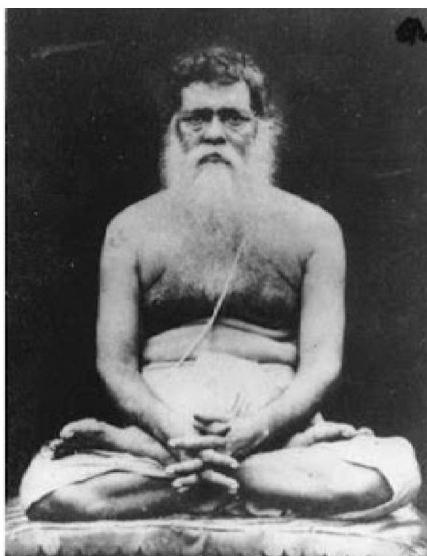
The scientific outlook is always the best friend of scientists and historians. Astronomy and Astrology are both great sciences and probably the best possible aides for any historian, even though they are not fully understood by most. The word *Science*, at least in context of this book, doesn’t simply and plainly translate to “*Modern Science*” but by it is meant any knowledge, derived empirically or by observation, of a systematic procedure that begets us some pre-known results. By the application of a science, when first interpreted correctly by the keys of reason and logic,

⁵ One such clearly identifiable mistake is the wrong generalization that the *Saptarṣi* (Ursa Major / Big Dipper) stay in one *Nakṣatra* (lunar constellation) for exactly 100 years, based on which the *Saptarṣi* Calendar was found by someone from the time of *Parīkṣit* when the *Saptarṣi* were said to be in *Maghā Nakṣatra* (Regulus). But this is a clear mistake since the *Saptarṣi* are fixed with respect to the ecliptic and always point to star Regulus in the third quarter of *Maghā Nakṣatra*.

correct desired results are obtained. Not all sciences are presently known to the mankind; some sciences are very subtle, some even of the realm of quantum physics, and are presently known to and operable by only few extremely wise sages who dedicate their lives to discovery of these subtle sciences. Sometimes, use of subtle sciences by these sages gives results that appear contrary to the known reason and logic and look miraculous to the common folk. One example of such subtle science is extending one's life span by 100-200 years, which is employed by some *Yogī* and sages to work out all their *karmas* in one body itself rather than work it out in different bodies, as said to be the case of *Trilaṅga Svāmī* of *Vārāṇasī* who lived for about 300 years. Other examples of such subtle sciences are the transmutation of one matter into another and the production of any desired scents out of air, as demonstrated by *Svāmī Viśuddhānanda* (*Gandha-Bābā*) of *Kolkata*, the famed spiritual teacher of Indian literary giant *Gopinath Kaviraj*, to many people in his lifetime, a fact also attested to by *Paramhansa Yogananda*, in his book *Autobiography of a Yogī*.



Trailanga Svāmī
of *Vārāṇasī* (Banares)



Svāmī Viśuddhānanda
(*Gandha-Bābā*) of *Kolkata*

The point in putting all this across is conveying that, sometimes, the commonly known reason and logic may not seem to work, due to operation of subtle laws, when one is dealing with highly advanced *Yogī*. The primary purpose of reason and logic is not to turn one into an atheist but to attain discriminative intelligence in matters that belong to the realm of conscious mind so one can tell the right from the wrong, the duty from the non-duty etc. In all matters that are beyond the realm of conscious mind, such as the higher states of *Yoga*, excessive use of reason and logic is futile and self-defeating since faith is needed to experience the Self (the *Ātman*). This Self, the only ultimate reality, and the ever-illusory nature of this world is detailed in the *Yoga Vāsiṣṭha*, a lengthy discourse by *Vasiṣṭha* to prince *Rāma*, complete with many anecdotes. It is perhaps the single greatest spiritual text that imparts a true understanding of the matters of the Self and of the metaphysical reality of this world that is nothing but a quantum dream being imagined by the Self in the field of its power (*Māya*).

As for a few personal details of mine, I was born in a Jāt⁶ family to Smt. Sushila and Sh. Jaipal Singh Sheoran on Oct 07, 1978 at Bhiwani, Haryana. My grandfather, Sh. Kapoor Singh, was a captain in Indian Army and my father was an Excise & Taxation Officer with the Haryana Govt. Although my native village is Kakroli Sardara, I was born at Umratavat, a predominantly Brahmin village right next to Bhiwani, where some land was awarded to my grandfather by the Govt. for gallantry. When I was about 9 years old, I was admitted to M.N.S.S. Rai at Sonepat, a leading

⁶ Jāts are said to be descended of *Yadu*, the eldest son of king *Yayāti*, and they were originally the *Kṣatriya* warriors. They were settled mostly in the North Indian regions about New Delhi such as Bharatpur, Agra and Mathura where they lived largely in a democratic manner having taken to agriculture as their chief livelihood, despite originally being the *Kṣatriyā*. Even now, Jāts are considered the bravest of all present-day castes in India. Outside India, Jāts are found in many central Asian countries and most of them are converted Hindus, such as the Muslim Jāts of Pakistan.

residential school of India, where I spent my next 7 years studying, and playing boxing. The huge library of school was my favorite haunt. After completing grade 10, my father pulled me out from this school and I studied the following 2 years at two different schools. Thereafter, under the instruction and guidance of my father, I appeared for the IIT-JEE entrance exam, India's most prestigious engineering exam, and managed to secure a seat to study Chemical Engineering at IIT Bombay in 1998. After my graduation in 2002, I took up a job in Mumbai itself. Then, in 2006, I had to move back to Haryana to keep my mother company as she was left alone on my father passing away due to a heart attack. I took up a techno-managerial position in the nearby Gurgaon, got married in 2008 and had a son born in 2010. With the end of 2010, I left my job to dabble in Real-Estate biz. My much-bitter marriage resulted in a divorce in late 2014. Regardless, all my life until now, even when all was well, I have always had a sense of general dissatisfaction as to the purpose and meaning of my life. The vacuum created in my life by my divorce greatly enhanced this feeling of unrest and dissatisfaction and set me thinking seriously about the true purpose of my life. After drifting for a while, my mind was finally turned to the study of Vedic texts. It's from a subsequent labor of two years, first of which was spent studying and second of which was spent writing, that this book has come forth. Are some events predestined? Well, if not for my personal troubles, this book would never have been written. In having written this book that restores India's glorious history to its rightful place, the primary purpose of my life is now achieved to my full satisfaction. With this service to the society, I hope I am now rid of all four kinds of debts that a man is born with. Many years of my life still remain, allowing me enough time to follow other desirable pursuits.

Sunil Sheoran

Jun 18, 2017 CE (*Āśāḍha Kṛṣṇa Aṣṭamī* K08)
(*Manvantara Saṃvat 6191, 52nd Tretā-Yuga, Saṃvatsara 23*)
Bhiwani, Haryana

Introduction

This book seeks to reveal the Vedic science of time and to establish the historical timeline of ancient World History. The Vedic Indian, the Egyptian and the various Mesopotamian civilizations are the most ancient civilizations on the planet. It'll be shown that just like the theory of relativity points out the relationship between energy and mass through one simple equation ($E=m^*C^2$), it's the almost-universal use of Vedic calendar in ancient times that points to the ultimate origin of Egyptian and Mesopotamian civilizations in the Vedic Indian civilization.

In the first chapter, the Vedic *Saṃskṛt* numbers and the Vedic distance units are explained first of all. Then the Precession cycle, the *Nakṣatrā*, the *Muhūrtā*, the *Samvatsara*, the *Yuga*, the *Mahā-Yuga*, the *Manvantara* and the *Kalpa* etc. are explained. Then the original *Nakṣatra* Zodiac, the *Sūrya Siddhānta* and the Vedic *Ayanāṁśa* are detailed. The Greek Astronomy of Hipparchus, the Indian Astronomy of *Vṛddha Garga*, *Āryabhaṭṭa* etc. and the origin of 12-Sign Zodiac from the *Nakṣatra* Zodiac are detailed next. At last is explained the Vedic calendar and its computation method.

In the first part of second chapter, the timeline of Indian history is established by examining the evidence of the *Purāṇā* genealogies, the Indus Valley Civilization and their mutual linkages. Based on the absurd theories of Max Muller, an imperial historian, the Indian civilization is largely thought to have started about 1650 BCE (*Ārya* Invasion Theory) in the Indus Valley (*Sapta Saindhava*) region with the supposed influx of *Āryā* from Central Asia. It's saddening to note that the *Purāṇā*, the most ancient annals of Indian history, are thus taken to be composed after the *R̥gveda* which is 'dated' to ~1200 BCE. The *Purāṇā* and *Vedā* are continually updated records from the start of Vedic civilization. It's wrong to think that they were 'composed' at a specific date. In thus neglecting the Puranic accounts from before 1200 BCE, the supposed time of *R̥gveda*, the entire Vedic Indian history up to this

time has been ignored blatantly by the likes of Max Muller, that too when 75 patriarchal generations of kings, all well-known, existed before this time. It's sufficiently established in this book that the Vedic Indian civilization is the oldest civilization in the world and that, starting with *Svayambhuva Manu* in the Himalayas in 3391 BCE, it carried on with *Vaivasvat Manu* shifting base to *Ayodhyā* in 2811 BCE. It's the lands under the rule of *Ayodhyā* that were collectively known as the *Āryāvarta* (lit. "The region of the *Āryā*"), not some vague central Asian region as theorized by Max Muller towards his *Ārya* Invasion theory. Many other mysteries of Indian history such as the *Kalki Avatāra*, the original *Vikramāditya* and the later *Vikramāditya* of Ujjain and his *Vikrama* Era, the famous king-turned-monk *Bhartṛhari*, the extremely learned king *Bhoja* of *Dhārā* (near Ujjain), the kings *Śālivāhana* and *Rāja Risalu* of Sialkot, the famous yogi *Gorakhanātha*, the great sanyasin *Ādi Śāṅkara*, the kings of Kashmir documented in the *Rājataranī* of *Kalhaṇa* and the early kings of Nepal and their Eras have been resolved beyond doubt for once and all. All of Indian history that was till now like a coiled up snake of unknown proportions has been set as straight as a stick. The IAST (International Alphabet of Sanskrit Transliteration) scheme has been used for *Saṃskṛt* terms.

In the second part of second chapter, the historical timeline of the ancient civilizations of the West has been established. The timeline of the patriarchs of Bible, the identity of the Pharaoh of Exodus⁷, the time of earliest Mesopotamian rulers such as Alulim of Eridu and Jushur of Kish and that of later Mesopotamian rulers such as Gilgamesh of Ur, Shulgi of Ur (with his Eclipses), Shamshi-Adad I of Assur, Hammurabi of Babylon, Ammi-saduqa of Babylon with his Venus Tablet and Samsu-ditana of Babylon, during whose time Babylon was sacked by the Hittite king Mursilis I, have been provided. The city-states of Eridu, Bad-tibira, Larag, Zimbir and Shuruppag figure in the earliest chronology of Mesopotamia. The complete chronology of the later Mesopotamian city-states of

⁷ Of the Hebrews, from Egypt

Assur, Babylonia, Larsa, Isin, Kish, Akshak and Ur, as known through the Sumerian King List and the Babylonian King List, has been established, perhaps for the very first time in such detail. The chronology of Egypt has also been established fairly well, especially from after the New Kingdom period (~1600 BCE). Contrary to what is generally believed to be, the Egyptian civilization started much before the ancient Mesopotamian civilizations at Kish and Eridu. It's also established that both the Egyptian (~3100 BCE) and the Mesopotamian (~2580 BCE) civilizations appeared later of the Vedic Indian civilization (~3400 BCE) and that both used the Vedic calendar, the science of which is detailed in the first chapter.

The two major intermediate milestones of Indian history, the *Rāmāyaṇa* and *Mahābhārata* periods, couldn't be pinpointed any earlier because they are intricately linked with the *Mahā-Yuga* time cycle that has been continually misunderstood from after the time of *Mahābhārata* war in 827 BCE as being of thousands of years. Both the *Mahābhārata* and the *Rāmāyaṇa* have been explained in detail in the third and fourth chapters respectively. As the time of *Mahābhārata* war (827 BCE) is a fixed time point of the *Mahā-Yuga* cycle and serves as the basis of timeline of Indian history, the third chapter can be read first independently.

Now, being a *Ārya*, my personal beliefs derive from the exalted *Sanātana Dharma* of the *Vedā*. But, in writing this book, my sole endeavor has been to delineate an accurate, truthful and unbiased account of the actual historical timeline of known human history. No unscientific ideas such as some kings thought to have lived for 200-500 years or more have been entertained for any civilization. I hope you will enjoy reading this book and will forgive any minor mistakes or errors that it may have. If you like this book, please help spread the word about it. The electronic version (PDF) of this book is as free as the sunlight.

Sunil Sheoran

List of Abbreviations

Abbr.	Meaning	Abbr.	Meaning
AB	<i>Āryabhaṭṭīyam</i>	GS.	<i>Gupta Saṃvat</i>
BBS	<i>Bhadrabāhu Saṃhitā</i>	KS.	<i>Kṛta Saṃvat</i>
BDP	<i>Brahmāṇḍa Purāṇa</i>	MNS.	<i>Mahāvīra Nirvāṇa</i>
BP	<i>Brahma Purāṇa</i>		<i>Saṃvat</i>
BS	<i>Bṛhad-Saṃhitā</i>	MS.	<i>Mālava Saṃvat</i>
GP	<i>Garuḍa Purāṇa</i>	SS.	<i>Śaka Saṃvat</i>
HP	<i>Harivarmśa Purāṇa</i>	VS.	<i>Vikrama Saṃvat</i>
HYP	<i>Haṭhayoga Pradīpika</i>	TVS.	<i>True Vikrama Saṃvat</i>
JV	<i>Jyotiḥvidābhāraṇa</i>		
KSS	<i>Kathā Sarita Sāgara</i>	FMP	Full Moon Point
MB	<i>Mahābhārata</i>	NMP	New Moon Point
MP	<i>Matsya Purāṇa</i>	JDN	Julian Day Number
NP	<i>Narasiṁha Purāṇa</i>		
PK	<i>Patra Kaumudī</i>	AST	Arabia Std. Time
PP	<i>Padma Purāṇa</i>	EET	Eastern Europe Time
PS	<i>Pañca Siddhāntikā</i>	IST	Indian Std. Time
RCM	<i>Rāmacarita Mānasa</i>		
RM	<i>Rāmāyaṇa</i>	CII	Corpus Inscriptionum Indicarum
RT	<i>Rājatarāṅgiṇī</i>		
RV	<i>R̥gveda</i>		
SP	<i>Skanda Purāṇa</i>		
VJ	<i>Vedāṅga Jyotiṣa</i>		
VP	<i>Viṣṇu Purāṇa</i>		
VYP	<i>Vāyu Purāṇa</i>		
YJ	<i>Yavanajātaka</i>		

Chapter 1

The Science of Time

*Mahā-Yuga Time Cycle, Nakṣatrā,
Earth's Precession Cycle, Ayanāṁśa,
Vedic Calendar*

1. Introduction

The *Vedā*, in their second part, that of *Vedānta*, state that the entire manifest creation is an endless cyclic phenomenon of alternating phases of creation and destruction. The knowledge of these time cycles is revealed in the *Purāṇā* and the *Vedāṅga Jyotiṣa*⁸. While the *Purāṇā* describe all the time cycles, from the smallest to the largest, such as the *Nāḍī*, the *Muhūrta*, the *Yuga*, the *Mahā-Yuga*, the *Kalpa* and the *Manvantara* etc, the presently available text of *Vedāṅga Jyotiṣa* only details the calculations for the *Yuga*, a 05 *Saṃvatsara*⁹ (luni-solar year) period. Quite unfortunately, from after the time of *Mahābhārata* war in 827 BCE, the cycle of *Mahā-Yuga*¹⁰ that comes immediately after that of the *Yuga*, has come to be misunderstood as being of thousands of years, due to continual misinterpretation of the Vedic *Śaṃskṛt* verses. No clear mathematical relation between the time cycles of *Yuga* and the *Mahā-Yuga* is presently known to the world.

This now stands to change forever, when the real meaning and high precision of these Vedic time cycles is established irrefutably in this book. It'll also be established that the Vedic calendar that is based on these time cycles, was also in use by the Egyptian and the Mesopotamian civilizations, will only a little difference. As these civilizations came later in time to the Vedic civilization, their

⁸ The (*Vedāṅga*) *Jyotiṣa* is one of the six limbs of *Vedā*: *Nirukta* (etymology), *Śiksā* (learning), *Vyākaraṇa* (grammar), *Jyotish* (astronomy), *Kalpa* (design) and *Chhanda* (metre). The text of *Vedāṅga Jyotiṣa* is available in two recensions, one attached to the *Rgveda* and other attached to the *Yajurveda*. Both contain the same verses, the only difference being that there are eight additional verses in the *Yajurveda* recension. The unique verses of the *Vedāṅga Jyotiṣa* are 47. In its present form, it's only an incomplete exposition of the Vedic science of time.

⁹ The Vedic Luni-Solar Year of 12/13 lunar months is known as the *Saṃvatsara*, as we will discover in the sections ahead.

¹⁰ The word *Mahā-Yuga* literally means the “Greater” *Yuga*.

use of Vedic calendar points to their ultimate origin in the Vedic Indian civilization itself.

The hitherto missing link between the time cycles of *Yuga* and the *Mahā-Yuga* has now been rediscovered to be the fact that 24 *Yugā*, of 5 *Samvatsarā* each, constitute one *Mahā-Yuga* that is of 120 *Samvatsarā*. With the missing link back in place, the unbroken time cycle implied by the *Rgveda* as the **Eternal Five-Spoked Wheel of Time** is clearly comprehensible and is now the subject matter of this chapter.

पञ्चारे चक्रे परिवर्तमाने तस्मिन्ना तस्युर्भवनानि विश्वा ।
तस्य नाक्षस्तप्यते भूरिभारः सनादेव न शीर्यते सनाभिः ॥ RV 1.164.13

On this five-spoked wheel, that is ever-revolving, never stationary, all beings of the world are dependent.

Its Axle, is never heated, even though heavy-laden, from times immemorial, (it's been running), its nave doesn't wear-out.

2. Vedic *Samskr̥t* Numbers

The cycle constituted of 24 *Yugā* (120 years) is known as the *Mahā-Yuga* or the *Catur-Yuga*. For about 1200 years after the *Mahābhārata* war, up to the time of Indian astronomer *Āryabhaṭṭa* (499 CE) of the *Siddhānta* period of Indian Astronomy, this very *Mahā-Yuga* of 120 years was thought to be of 12,000 years owing to a simple mathematical misunderstanding explained ahead.

The astronomer *Āryabhaṭṭa*, misinterpreting the *Samskr̥t* word *Divyam* (दिव्यं, Solar/Solstitial) as *Daivam* (दैवं, of gods), understood these 12,000 years to be those of the gods. As he believed that one human year equals one day of the gods, he multiplied this figure by 360 to arrive at the humongous figure of 4,320,000 years as the time span of a *Mahā-Yuga* and 432,000 years as the time span of *Kali-Yuga*. Thus was born the ghost of *Kali-Yuga*.

रविवर्षं मानुष्यं तदपि त्रिंशदगुणं भवति पित्र्यम् ।
 पित्र्यं द्वादशगुणितं दिव्यं वर्षं विनिर्दिष्टम् ॥ AB 3.7
 दिव्यं वर्षसहस्रं ग्रहसामान्यं युगं द्विषट्कगुणम् ।
 अष्टोत्तरं सहस्रं ब्राह्मो दिवसो ग्रहयुगानाम् ॥ AB 3.8

A solar year is that of Men, 30 times that (30 years) is that of Forefathers, 12 times the year of Forefathers (360 years) is said to be the Divine Year. 12,000 times the Divine Year (4,320,000 years) is a general planetary Yuga, 1008 of these general planetary Yuga (4,354,560,000 years) make up a day of Brahmā.*

* *Year of the gods, as per him*

The original mathematical misunderstanding mentioned above is to take the *Saṃskṛt* words of *Sahasrāṇi* (सहस्राणि) and *Śatāni* (शतानि) to mean 1000 and 100 respec. What is true is that, in the Vedic *Saṃskṛt* of *Rāmāyaṇa* time, *Sahasrāṇi* (सहस्राणि) mostly means only 10 and *Śatāni* only 1. While in the Vedic *Saṃskṛt* of the *Mahābhārata* time, *Sahasrāṇi* (सहस्राणि) mostly means 10's place and *Śatāni* only 1's place. If only this much is understood properly, the entire science of time, that is the subject matter of this book, stands revealed by the *Purāṇā* themselves for now the correct translations can be made in light of these new facts. All the inconsistencies such as people thought to have lived for hundreds of years get straightened out. The two reasons that I can foresee for this epic misunderstanding are the need to express bigger numbers with progress of time and the evolution and change of writing script of *Saṃskṛt* from *Brāhmī* to *Devanāgarī*. The ubiquitous *Devanāgarī* script has existed for only 1000 years or so.

As can be noticed in the table given below, what were simple numbers in the times of *Rāmāyaṇa* progressed to becoming a decimal system by the time of *Mahābhārata*. As the *Purāṇā* have the *Saṃskṛt* verses of these two times mixed up hopelessly, only the most meaningful and logical interpretation need be chosen.

Vedic Saṃskṛt of Rāmāyaṇa					
Prayutam प्रयुतम्	Ayutam अयुतम्	Sahasram सहस्रम्	Śatam शतम्	Daśam दशम्	Ekam एकम्
100,000	10,000	1,000	100	10	1
	Arbudāni अर्बुदानि	Prayutāni प्रयुतानि	Ayutāni अयुतानि	Sahasrāṇi सहस्राणि	Śatāni शतानि
100,000	10,000	1,000	100	10	1

Vedic Saṃskṛt of Mahābhārata					
Prayutam प्रयुतम्	Ayutam अयुतम्	Sahasram सहस्रम्	Śatam शतम्	Daśam दशम्	Ekam एकम्
100,000	10,000	1,000	100	10	1
	Arbudāni अर्बुदानि	Prayutāni प्रयुतानि	Ayutāni अयुतानि	Sahasrāṇi सहस्राणि	Śatāni शतानि
100,000's Place	10,000's Place	1,000's Place	100's Place	10's Place	1's Place

Table 1.1
The Vedic Saṃskṛt Numbers

It appears that the word *Ani* (अनि), deriving from the word *Anu* (अणु) meaning a small particle, was initially suffixed to number words such as *Sahasram* (सहस्र) and *Śatam* (शतं) to denote their 100th part and these compound words later on came to represent the place system.

- *Sahasrāṇi* (सहस्राणि) = *Sahasra* (सहस्र) + *Ani* (अनि)
[100th part of *Sahasram* = $1000/100 = 10$]
- *Śatāni* (शतानि) = *Śata* (शत) + *Ani* (अनि)
[100th part of *Śata* = $100/100 = 1$]

Consider the following verses from *Rāmāyaṇa*, which now take perfectly sensible meanings on their correct translation:

दिलीपः तु महातेजा यज्ञैः बहुभिः इष्टवान् ।

त्रिंशद् वर्ष सहस्राणि राजा राज्यं अकारयत् ॥ RM 1.42.8

*Dilipa was greatly resplendent, sacrifices, many he performed,
40 (30+10) years that king ruled the kingdom.*

नव नाग सहस्राणि कल्पितानि यथा विधि ।

षष्ठी रथ सहस्राणि धन्विनो विविध आयुधाः ।

शतं सहस्राणि अश्वानां समारूढानि राघवम् ।

अन्वयुः भरतं यान्तं राजपुत्रं यशस्विनम् ॥ RM 2.83.3-5

*19 (9+10) Elephants, well-decorated, as per the known procedure,
70 (60+10) Chariots and (many) Archers with various weapons,
110 (100+10) horsemen rode along with the Rāghava (Bharata),
(They) followed Bharata (to Rāma's place in forest), the famed royal prince.*

षष्ठि वर्ष सहस्राणि जातस्य मम रावण ।

पितृ पैतामहं राज्यं यथावत् अनुतिष्ठतः ॥ RM 3.50.20

वृद्धो अहं त्वं युवा धन्वी स रथः कवची शरी ।

न च अपि आदाय कुशली वैदेहीं न गमिष्यसि ॥ RM 3.50.21

It's been 70 (60+10) years since I was born, O Rāvaṇa.

*The kingdom of my father and forefathers, as per tradition, I have ruled well.
Old am I, You are a young Archer, your Chariot is armed with Arrows,
Even then, seizing Vaidehī (Sītā), you can't go away well (without a fight).*

शत साहस्रं अव्यग्रं आरक्षं मध्यमं कपि: ।

रक्षोधिपति निर्धिष्ठं ददर्शान्तः पुराग्रतः ॥ RM 5.4.23

*110 (100+10) (forces), attentively guarding, by Hanumān,
at command of guard commander, were seen in front of the (inner) fort.*

तेषां अशीति साहस्रं शूल मुद्रर पाणिनाम् ।

मया तस्मिन् वन उद्देशे परिघेण निषूदितम् ॥ RM 5.58.114

*Of them, 90 (80+10), who held Tridents and Clubs in their hands,
By me (Hanumān), in that garden land, with an iron club, were killed.*

दश वर्ष सहस्राणि दश वर्ष शतानि च ।

रामो राज्यं उपासित्वा ब्रह्मलोकं प्रयास्यति ॥ RM 1.1.97

*For 10 years (increased by) 10, and 10, and 1, (10+10+10+1=31 years in all),
Rāma served the kingdom before striving for the region of (all pervading)
Brahm.*

Consider the following verses from *Rāmāyaṇa* which recount an event of *Rāma* killing some *Sahasrāṇi Caturdaśa* (सहस्राणि चतुर्दश) *Rākṣasā* in about 1.5 *Muhūrtā* (72 minutes):

रक्षसां भीम वीर्याणां सहस्राणि चतुर्दश ॥ RM 3.34.9

निहतानि शरैः तीक्ष्णैः तेन एकेन पदातिना ।

अर्धाधिक मुहूर्तेन खरः च सह दूषणः ॥ RM 3.34.10

Rākṣasā, huge and brave, 24 (14+10; traditionally, 14,000) in number, he killed by sharp arrows, while all alone and on foot (without chariot), in 1.5 *Muhūrtā* (72 minutes), including *Khara* (who was) with *Dūṣana*.

Here, the phrase “*Sahasrāṇi Caturdaśa*” (सहस्राणि चतुर्दश) is classically interpreted as 14,000 which would mean *Rāma* killed 3.24 *Rākṣasā* per second ($14000/(72*60)$) without pausing even for a second for a total of 72 minutes. What foolish supposition on our part, *Rāma* was certainly not a machine gun. Surely, the interpretation of *Caturdaśa Sahasrāṇi* as 14,000 is the only thing wrong here, it's supposed to mean only 24 (14+10) and it's perfectly possible that he slayed 24 *Rākṣasa* warriors in 72 mins.

Now consider the following verse from *Mahābhārata* wherein the phrase “दश वर्ष सहस्राणि” is traditionally interpreted as 10,000 years making the verse appear highly doubtful. With the correct translation however, the real sensible meaning comes to light:

अस्याः क्षीरं पिबेन्मर्त्यः स्वादु यो वै सुमध्यमे ।

दश वर्ष सहस्राणि स जीवेत् स्थिरयौवनः ॥ MB 1.93.19

Mortals, drinking its waters, that is of excellent taste, For 100 years (10*10; traditionally 10,000 years), they live with unwavering youth.*

** In the *Vedā*, 100 years is considered the full life span of a healthy human. If the same verse would have been from the time of *Rāmāyaṇa*, it would have meant 20 years (10+10).

Consider the case of said 72,000 *Nāḍī* (Veins & Arteries) in our bodies, as quoted from the *Hathayoga* texts. Right interpretation corrects this exaggeration to a believable figure of 720 or 82:

चतुरशीति पीठेषु सिद्धमेव सदाभ्यसेत् । द्वासप्ति सहस्राणां नाडीनां मल शोधनम् ॥ HYP 1.41

In 84 Asanā (postures), excellence should be attained, by ever practicing, For 720 (or 82: 72+10) Nāḍī to be cleansed of (all their) impurities.

While the meanings of some more complex and compound mathematical numbers of Vedic *Saṃskṛt* such as *Śata-Sahasrāṇi* (शतसहस्राणि, 100+10 in *Rāmāyaṇa*, 100*10 in *Mahābhārata*) are obvious, some other words such as *Śata-Sahasram* (शतसहस्रं) seem to indicate 1100 (100+1000) in times of both these epics. It seems that, with time, while some popular words retained their original meaning, the new compound words increasingly used the decimal place system in the manner of our speaking out the numbers:

Five (Thousand) Six (Hundred) Ten = $5 \times 1000 + 6 \times 100 + 10 = 5610$ Śata (Sahasrāṇi) Śatam = $100 \times 10 + 100 = 1100$
--

Certainly, the Vedic texts such as the *Mahābhārata* and *Rāmāyaṇa* are not at fault when *Śata-Sahasrāṇi* (शतसहस्राणि) is wrongly taken to mean 100,000 (100*1000) and the most western Indologists find in it a matter of levity. A lot remains to be researched on these but at least the wrong (classical) interpretation of words such as *Sahasrāṇi* (सहस्राणि) and *Śatāni* (शतानि) that seemingly give absurd meanings, such as where stated of *Rāma* to have ruled 11,000 years or of *Kṛṣṇa* to have had 16,000 queens, has already been identified. Only by examining into the cause of these anomalies, the right meanings of these two words of *Sahasrāṇi* (सहस्राणि) and *Śatāni* (शतानि), and their various combinations, have been discovered which give us not only the right interpretation of the time period

of *Mahā-Yuga* but also the right interpretation of the Vedic distance units such as a *Krośa* or a *Yojana*.

Since the influence of time is said to be so great that, in governance of all important matters, nothing happens before its right time. It was under the influence of this time that not *Pāṇini*, not *Kātyāyana*, not *Patañjali*, not *Vararuci* and not even the great *Ādi Śaṅkara* himself could detect and correct this most absurd mistake. Even the greatly famed Vedic scholar of 18th century, *Svāmī Dayānanda Sarasvatī*, who otherwise reformed the Indian society of its many social anomalies, has given in his *Satyārtha Prakāśa* and *Rgvedādi Bhāṣya*, the time span of a *Mahā-Yuga* as that of thousands of unending years¹¹. Even for the past 200 years since 1800, when copies of most texts are easily available, all the eminent Vedic Scholars and Indologists completely failed to detect this except one *William Dwight Whitney*, a professor of *Saṃskṛt* at Yale, who at least noted the anomalies in the interpretations of some Vedic *Saṃskṛt* numbers and wrote thus in his book ("Sanskrit Grammar", Chapter VI - NUMERALS, pub. 1950):

"180.b. By a peculiar and wholly illogical construction, such a combination as trīṇi ṣaṣṭiçatāni, which ought to signify 480 (3x(100+60)), is repeatedly used in the Brāhmaṇas to mean 360 (3x100+60); so also dvé catuṣtriñcē çaté 234 (not 268); dvāṣaṣṭāni trīṇi çatāni 362; and other like cases. And even R. has trayaḥ çataṣatārdhāḥ 350."

But now, since we know the numerous possible interpretations of Vedic numbers, his confusion can be removed thus:

trīṇi ṣaṣṭiçatāni (त्रीणि षष्ठिचतानि)

- Write 3 (त्रीणि), then write 60 (षष्ठि) at 1's place (शतानि) = 360

¹¹ It's only now in 2017, that we finally know that a *Mahā-Yuga* is only of 120 *Samvatsarā* and that the present *Mahā-Yuga* is the 52nd one and not the 28th one as continually believed to be so from after the *Māhābhārata* period.

dvé catustriñcé çaté (द्वे चतुर्तिंशे शते)

- Write 2 (द्वे), then write 34 (चतुर्तिंशे) at 1's place (शते) = 234

dvāśaṣṭāni trīṇi çatāni (द्वाषषट्ठानि त्रीणि शतानि)

- Add 62 (द्वाषषट्ठानि) to 300 (त्रीणि शतानि) = 362

trayaḥ çataçatārdhāḥ (त्रयः शत शतार्धाः)

- To 300 (त्रयः शत), add 50 (शतार्धाः) = 350

This mistake, the Classical Paninian Interpretation of Vedic *Saṃskṛt* texts, is so simple and so unthinkable that it has completely evaded detection for nearly 2500 years now and has kept the true knowledge of the Vedic texts from being uncovered all these centuries after the *Mahābhārata* war. All the Vedic texts such as the *Vedā*, the *Manusmṛti*, the *Rāmāyaṇa*, the *Mahābhārata* and the most *Purāṇā*, which were composed mostly under the rules of Vedic *Saṃskṛt*, need to be reinterpreted correctly. As scholars will begin to discover the real meaning of Vedic texts, it will usher in a new age of great respect for the Vedic texts. The lists of Vedic *Saṃskṛt* words from the *Vedā* have been compiled by the early sage into the *Nighaṇṭu* texts. On these *Nighaṇṭu*, a great commentary known as the *Nirukta* was written by the sage *Yāska* (or *Yāskācārya*) who is also mentioned by the *Kṛṣṇa* in the *Mahābhārata*. It's this *Nirukta* of *Yāska* that needs to be studied well for the correct knowledge of construction of Vedic *Saṃskṛt*.

What does this discovery change? It removes the most misconceptions associated with the Vedic *Saṃskṛt* numbers and brings out their true meaning. For example, it rightly tells us of the age of a *Mahā-Yuga* as 120 *Saṃvatsarā* (years) and it rightly resets the supposed 16,000 queens (*śoḍaśa sahasrāṇi*, पोडश सहस्राणि) of *Kṛṣṇa* to only 26 (16+10), a much reasonable number to believe. *Kṛṣṇa* originally had only 10 principal queens, the 16 additional ones were the royal girls that were rescued from the captivity of *Narakāsura* when *Kṛṣṇa* killed him. After attaining freedom, these royal girls started crying as to which noble persons would marry them as they had earned the supposed ill-reputation of being kidnapped by the *Rākṣasa* *Narakāsura*. *Kṛṣṇa*, moved by their

plight, married them all to protect their honor. It's a shame that *Kṛṣṇa*, a greatly exalted *Ārya* of the 2nd order, a supreme Yogī and the enunciator of the supreme knowledge of the Self to *Arjuna*, extant in the form of *Bhagavad Gītā* text, is taken to be an indulgent and amorous man by some.

2.1 The Vedic Distance Units

Due to the misinterpretation of the two words of *Sahasrāṇi* (सहस्राणि) and *Śatāni* (शतानि), the words of *Sahasrāṇi* (सहस्राणि) and *Sahasra* (सहस्र), and that of *Śatāni* (शतानि) and *Śata* (शत), were later on used interchangeably in the *Purāṇā*. Due to this interchangeable usage, some of the original Vedic distance units got multiplied many times over. Although trying to find the right contextual meaning for the verses employing these words is a little difficult, like picking only sugar from a mixture of sugar and sand, but it's not altogether impossible.

Given in the following table are the correctly interpreted distance units that have been sourced and tallied from the *Vāyu Purāṇa*¹², the *Mārkaṇḍeya Purāṇa*¹³ and the *Brahmānda Purāṇa*. Almost all *Purāṇā* have these mentioned. Here, the distances represented by

¹² कनिष्ठ्या वितस्तिस्तु द्वादशाङ्गुल उच्यते ।
रत्निरङ्गुलपर्वाणि संख्यया त्वेकविंशतिः ॥ VYP 8.104
चतुर्विंशतिभिश्चैव हस्तः स्यादङ्गुलानि तु ।
किञ्चु: स्मृतो द्विरत्निस्तु द्विचत्वारिंशद् अङ्गुलम् ॥ VYP 8.105
चतुर्हस्तं धनुर्दण्डो नालिकायुगं एव च ।
धनुः सहस्रे द्वे तत्र गव्यूतिस्तैः विभाव्यते ॥ VYP 8.106
अष्टौ धनुः सहस्राणि योजनं तैः उच्यते ।
एतेन योजनेनैव संनिवेशः ततः कृतः ॥ VYP 8.107

¹³ द्वे वितस्ती तथा हस्तो ब्राह्म्यतीर्यादिवेष्टयन् ।
चतुर्हस्तं धनुर्दण्डो नाडिका युगमेव च ॥ MP 46.39
क्रोशे धनुः सहस्रे द्वौ गव्यूतिः तद् चतुर्गुणम् ।
प्रोक्तं च योजनं प्राज्ञः संख्यानार्थं इदं परम् ॥ MP 46.40

the units up to *Dhanu* / *Danda* are undisputed and well understood, the only confusion that is there is about the distances represented by the units of *Krośa* and *Yojana* that have been interpreted variously from after the time of *Mahābhārata*.

No	Unit	Sub-Units	Near-Absolute Measure
1	<i>Aṅgula</i>	-	Finger-Width, 1/4 th Palm-Width, 0.75 In., 1.905 cm.
2	<i>Vitasti</i>	12 <i>Aṅgulā</i>	9 In., 22.86 cm.; distance from Thumb to short finger when stretched in line
3	<i>Ratni</i>	21 <i>Aṅgulā</i>	15.75 In., 40.005 cm.
4	<i>Hasta</i>	24 <i>Aṅgulā</i>	18 In., 45.72 cm.
5	<i>Kiṣku</i>	02 <i>Ratni</i> , 42 <i>Aṅgulā</i>	2.625 Ft.
6	<i>Nāḍikā</i> , <i>Nālikā</i>	02 <i>Hastā</i> , 48 <i>Aṅgulā</i> , ½ <i>Dhanu</i>	03 Ft.
7	<i>Dhanu</i> , <i>Danda</i>	04 <i>Hastā</i> , 96 <i>Aṅgulā</i>	06 Ft.; average height of a fully grown and well-developed man
8	<i>Krośa</i> , <i>Gavyūti</i>	12 <i>Dhanu</i> (2+10) (48 <i>Hastā</i>)	72 Ft., 21.9456 Mt.; <i>Krośa</i> actually means the “Distance Range of a Cry” but is traditionally taken to be 2000 <i>Dhanu</i> (=12,000 Ft., 3.6576 Km.)
9	<i>Yojana</i>	18 <i>Dhanu</i> (8+10) (72 <i>Hastā</i>)	108 Ft., 32.9184 Mt.; traditionally taken to be 8000 <i>Dhanu</i> (= 48,000 Ft., 14.6304 Km.); Taken as 04 <i>Krośā</i> later.
10	<i>Śata Krośa</i>	100 <i>Krośā</i> (1,200 <i>Dhanu</i>)	7,200 Ft., 2.19456 Km.

Table 1.2
The Original Vedic Distance Units

Below, it can be noticed that the *Brahmāṇḍa Purāṇa* and *Vāyu Purāṇa* define the *Krośa* as equal to “*Sahasre Dve*” (सहस्रे द्वे) *Dhanu* and the *Yojana* as equal to 08 *Sahasrāṇi* (सहस्राणि) *Dhanu*. Here, the only sensible meaning of *Krośa* and *Yojana* are 12 *Dhanu* (2+10) and 18 *Dhanu* (8+10) respectively:

धनुः सहस्रे द्वे चापि गव्यूतिरूपदिश्यते ।
अष्टौ धनुः सहस्राणि योजनं तु विधीयते ॥ BDP 3.2.126

*Dhanu, 12 (2+10; traditionally 2000), make up one Gavyūti, it is said,
(And) 18 Dhanu (8+10; traditionally 8000), for the Yojana, are accounted.*

अष्टौ धनुः सहस्राणि योजनं तैः उच्यते ।
एतेन योजनेनैव संनिवेशः ततः कृतः ॥ VYP 8.107

*18 Dhanu (8+10; traditionally 8000) are called a Yojana,
In this way, based on the (unit of) Yojana, (their) houses were then made.*

The phrase that defines the *Krośa* distance as “*Sahasre Dve*” (सहस्रे द्वे) *Dhanu* is generally misinterpreted as 2000 *Dhanu* (2*1000), the only sensible interpretation here is 12 *Dhanu* (2+10). It seems that the original phrase must have been “*Sahasrāṇi Dve*” (सहस्राणि द्वे) that meant to indicate 12 and that got corrupted to “*Sahasre Dve*” (सहस्रे द्वे) over time. Also, as we already know now that *Sahasrāṇi* (सहस्राणि) indicates 10, the 08 *Sahasrāṇi* (सहस्राणि) *Dhanu* are nothing but 18 *Dhanu* (8+10). So, clearly, a *Krośa* equals 12 *Dhanu* (72 Ft.) and a *Yojana* equals 18 *Dhanu* (108 Ft.). The interpretation of a *Krośa* as being the fourth part of a *Yojana* [MP 46.40] seems to be a later conclusion made on the misinterpretation of these two numbers as 2000 *Dhanu* and 8000 *Dhanu* respectively. It should also be mentioned that the meaning of word *Krośa* (क्रोश) is a cry and its use as a distance-unit means the “*Distance Range of a Cry*” which actually equals ~22 Mt. but which is wrongly interpreted to mean about 3.65 Km. It’s preposterous to think that a normal cry would be heard as far as 3.65 Km., usually it’s only about 20-30 meters. Also, coming to think of it, when the text here is describing all subsequent units in multiples of twos and fours of the previously stated units, it’s highly illogical that the text should suddenly jump to a mammoth figure of 2000 times the previous unit while describing the unit of *Krośa*. In stating these subsequent units, a gradual increase by multiples of 2/4/10/20/50/100 is normal and logical but an increase by 2000 times right after an increase by 4 times is highly abnormal and illogical.

When the *Purāṇā* are reread with this newfound knowledge, all the distances stated therein get revealed as truthfully as they were actually meant to be. Consider the height of *Meru* Mountain which is stated as “*Sahasrāni Caturaśīti*” (सहस्राणि चतुरशीतिः). Firstly, this phrase is misinterpreted to mean 84,000 *Yojana* (84x1000) while it only means 94 *Yojana* (10+84). Secondly, if a *Yojana* be taken equal to 8,000 *Dhanu* (48,000 Ft.), this height of 84,000 *Yojana* comes out to be a humongous 4.032×10^9 Ft. (1,228,953.6 Km.), 96.5 times the diameter of Earth itself. The height of 84,000 *Yojana* still equals 9.072×10^6 Ft. (2,765.1456 Km.), an impossible figure, even with the correct measure of *Yojana* (18 *Dhanu*, 108 Ft.). Mount Everest, the tallest mountain on Earth, itself is about 8.8 Km. So, the height of *Meru* is 94 *Yojana* (10+84) and, with the correct measure of *Yojana* (18 *Dhanu*, 108 Ft.), it comes out correct at about 3.1 Km:

मध्ये पृथिव्यामद्रीन्द्रो भास्वान् मेरुहिरण्मयः ।
योजनानां सहस्राणि चतुरशीतिः समुच्छ्रितः ॥ NP 30.19

In the middle of Earth is the lord of mountains, Meru, of golden splendor, To Yojana 10 and 84 (10+84=94), it is elevated. [Is also 16 Yojana in Earth]

Note: It's being said that the height of *Meru* Mountain is 94 *Yojana* that equal 3094.3296 Mt. Adding the local altitude of Gangotri (3415 Mt.) to this gives us the height of *Meru* from sea-level as about 6500 Mt. This is also the height of most peaks about Gangotri where *Meru* is located.

Next, consider the fort of *Ayodhyā* city, a very old city of the world that exists to this day¹⁴, which is stated to be 12x3 *Yojana*:

आयता दश च द्वे च योजनानि महापुरी ।
श्रीमती त्रीणि विस्तीर्णा सुविभक्ता महापथा ॥ RM 1.5.7

The length is 12 *Yojana*, of the (fort of) the great city (*Ayodhyā*), Well-blessed, (it is) 3 (*Yojana*) wide, well-divided by big walkways.

Note: It's being said that the dimensions of *Ayodhyā* fort were 12x3 *Yojana* which is equivalent to size of “395.0208 x 98.7552 Mt.”

¹⁴ It was deserted briefly before being repopulated by *Skanda Gupta* (*Vikramāditya*). Its alternative name is *Sāketa*, as also known to Greeks.

Now, the exact birth spot of *Rāma* in *Ayodhyā* is known with great certainty. A temple of *Rāma* that existed at this very spot was demolished by the Muslim invader Babar who raised on the ruins of this temple a mosque known as the Babri Masjid. This Babri Masjid was demolished by the Hindus on Dec 06, 1992 CE and the reconstruction of *Rāma's* temple at this spot is awaited by the millions of Hindus. Keeping this very spot about the middle, if we now try to superimpose a rectangle of the original dimensions of *Ayodhyā* Fort (395x99 Mt.), we find that the rectangle nearly fills up this entire area encircled by the major roads on its outside:

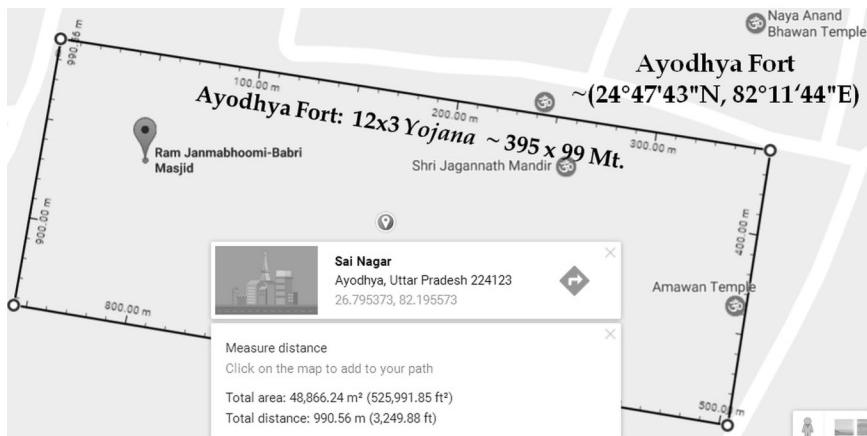


Figure 1.1
Ayodhyā Fort Dimensions

Next, consider the length of bridge constructed by the *Rāma's* army across the *Sāgara*, the sea of *Rāmāyaṇa*, in the middle of which was situated the *Laṅkā* of *Rāvaṇa*¹⁵. The bridge is said to be a

¹⁵ *Laṅkā* of *Rāvaṇa* isn't the present day country of Sri Lanka. Sri Lanka was known as *Ceylon* during the British era and before that its name was *Sinhalā* Island, as noted in the Indian literature. It was only as recently as 1972 when it changed its name to Sri Lanka, owing to the popular misconception of its being the *Laṅkā* of *Rāvaṇa*. It's only a coincidence that a 50-90 km. long naturally-formed coral bridge (*Rāmasetu*) exists between India and Sri Lanka.

100 *Yojana* in length and was constructed in 5 days. With the traditional interpretation of *Yojana* as 5-9 Km., how in the world can a 500-900 Km. bridge be constructed in 5 days? But, as we now know the true measure of *Yojana*, the bridge was 3.29 Km. (10,800 Ft.) long and it's perfectly plausible for an army to have constructed that much in 5 days. Shown below is my best guess for the location of *Laṅkā* in *Sāgara* (Bansagar)¹⁶, if it's not already submerged by the waters expanded due to the dam. The exact site can only be determined after an archaeological consideration:

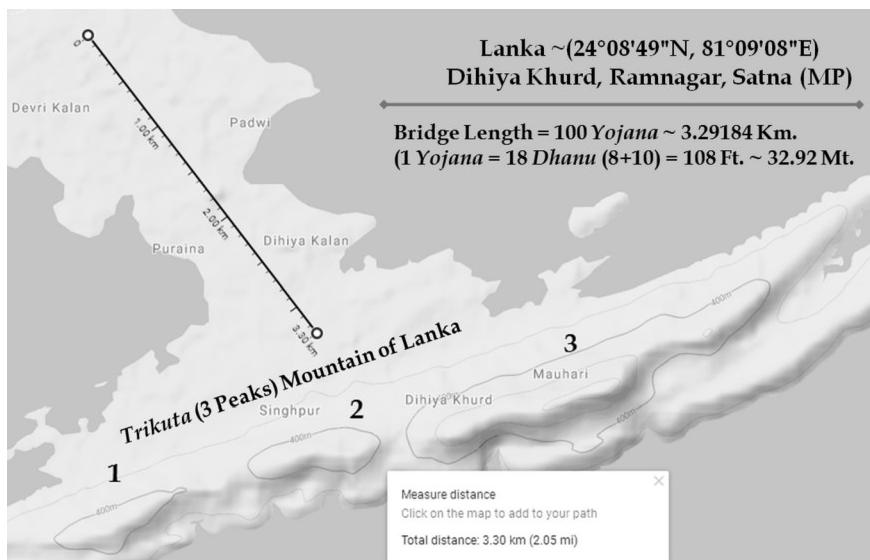


Figure 1.2
The *Laṅkā* of *Rāvaṇa* in the *Sāgara*

¹⁶ This *Sāgara* is stated to be at the southern border of *Āryāvarta* / *Bhāratavarṣa* which was defined by the *Vindhyaśala*. The only such 'sea' that exists immediately south of the *Vindhyaśala* is the Bansagar (*Bāṇa Sāgara*) reservoir of M.P. ($24^{\circ}08'49''N, 81^{\circ}09'08''E$) named after the scholar *Bāṇa Bhaṭṭa*. The dam project that forms this reservoir on the Sone River was started in 1978 but there must have existed an original natural reservoir here, utilizing which the dam was constructed. It's also known that *Laṅkā* was situated in an island in the middle of *Sāgara*, on top of mountain *Trikūṭa* (त्रिकूट) that had 3 Peaks. As can be seen above, the landmass connecting this 'island' is just about bridge length (3.29 Km).

3. Earth's Precession Cycle

Let's first note the near-accurate value of the Earth's Precession Cycle beforehand as it'll be referenced multiple times.

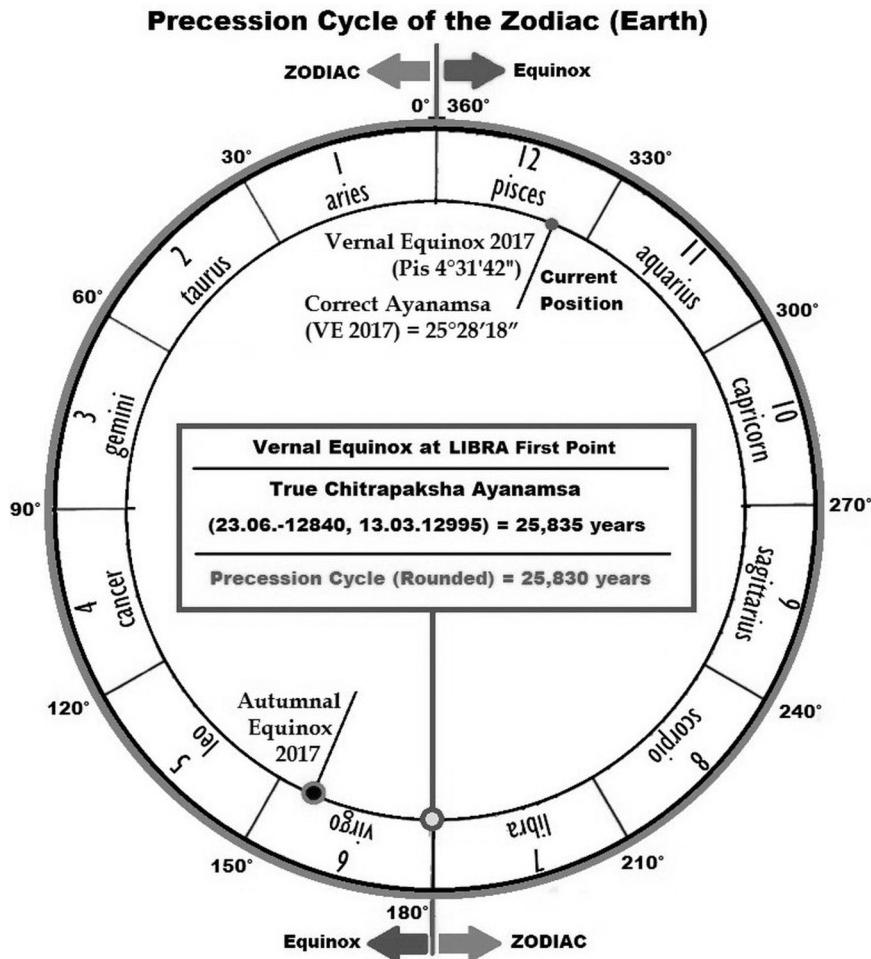


Figure 1.3
Earth's Precession Cycle

A nominal value of Earth's Precession Cycle, also known as the Precession of the Equinoxes, can be first attained by dividing 360 by the current average precession rate of 50" (50/3600 of a degree).

This gives us a nominal value of 25,920 Years [$360/(50/3600)$]. However, to compute the near-exact duration of Precession Cycle, two dates of Vernal Equinoxes, one of past and one of future, at first point of LIBRA were calculated with a commonly used *Ayanāṁśa*, the *True Citrapakṣa Ayanāṁśa*¹⁷. These dates came out to be 12841 BCE (23.06.12840) and 12995 CE (13.03.12995) respectively, as also shown in the figure above, with the mutual difference of 25,835 years (12841+12995-1). Of this, the nearest round multiple divisible by both 30 and 60 is 25,830 years which is what needs to be considered ignoring the 5 extra years (0.02%) as negligible error. This establishes the true average rate of precession as $50.17421602787456''$ [$3600*(360/25830)$] or simply as $1/71.75$ or, better still, as $120/8610$ ($120^\circ / 8610$ years).

4. Vedic Time Cycles

A variable year of 12/13 lunar months, as counted from near one winter solstice to another, is known as the *Samvatsara*. The *Samvatsara* is allowed to vacillate a little, under preset rules, as required for its synchronization with the winter solstice. It is this *Samvatsara* that lies at the heart of all Vedic time cycles. All the mentions of the word 'Year' in this book are references to only the *Samvatsara*, unless specified otherwise. Also, when a Gregorian year is so mentioned for the Vedic calendar, it means the year as it exists in its middle. Given below are the sub-units of a *Samvatsara*:

In a *Samvatsara*, there are 12 or 13 *Māsā* (lunar months).

In a *Māsa*, there are 2 *Parvā* (lunar fortnight).

In a *Parva*, there are 15 *Tithi* (lunar days), on an average.

Each *Tithi* has 2 *Karaṇā* (half-parts) of about 12 hours each.

Each *Karaṇā* has 5 *Prahara* of 2.4 hours each.

Each *Prahara* has 3 *Muhūrtā* of 48 minutes each.

Each *Muhūrtā* has 2 *Nāḍī* of 24 minutes each.

¹⁷ It takes the beginning of Aries exactly opposite the Spica star.

Each *Nādī* has 15 *Kalā* of 1.6 minute each.

Each *Kalā* has 30 *Kāṣṭhā* of 3.2 seconds each.

Each *Kāṣṭha* has 15 *Nimeśā* of 0.2133 seconds each.

Some other common units of time, less than or equal to a day, of the time of *Siddhānta*¹⁸ period, are listed in the table below, along with their equivalent periods in various time cycles:

Main Unit	Sub Units	Eq. Angle	Earth Day	Precession Cycle (Yrs.)	Brahmā's Day (Yrs.)
<i>Tithi</i>	2 <i>Karaṇā</i>	360°	24 Hrs.	25,830	258,300
<i>Karaṇa</i>	5 <i>Praharā</i>	180°	12 Hrs.	12,915	129,150
<i>Prahara</i>	3 <i>Muhūrtā</i>	36°	2.4 Hrs.	2,583	25,830
<i>Muhūrtā</i>	2 <i>Nāḍikā</i>	12°	48 Min.	861	8,610
<i>Nāḍikā / Ghāṭī / Daṇḍa</i>	15 <i>Kalā</i>	6°	24 Min.	430.5	4,305
--	--	3°	12 Min.	215.25	2,152.5
--	--	1°	4 Min.	71.75	7,17.5
<i>Kalā / Laghu</i>	30 <i>Kāṣṭhā</i>	24'	1.6 Min.	28.7	287
<i>Vighaṭī / Pala</i>	--	6'	24 sec.	7.175	71.75
<i>Kāṣṭhā</i>	15 <i>Nimeśā</i>	48"	3.2 sec.	1.913333	19.13333
<i>Nimeśa</i>	--	3.2"	0.213 sec.	0.127553	1.27553

Table 1.3
Other Common Time Units

The modern-day almanacs are now available in India and known as the *Pañcāṅga* (lit. “of Five Limbs”) that contain everyday information on the *Tithi* (lunar day), *Nakṣatra* (Moon’s asterism), *Vāra* (weekday), *Yoga* (relative angular position of Sun and Moon) and the *Karaṇa* (half-day).

¹⁸ From the times of *Vṛddha Garga* and *Āryabhaṭṭa*

4.1 *Tithi*

Technically, a *Tithi* is a lunar day but practically, it is the time duration from one completed sunrise to the next. So, at the end of a sunrise, the previous *Tithi* ends and the next *Tithi* begins.

The present technique of *Tithi* reckoning in India, with its origin in the work of *Āryabhaṭṭa*, is wrong as it defines a *Tithi* based on incremental difference of 12° between the longitudes of Moon and Sun. As per this erroneous technique, if the Moon doesn't progress an additional 12° ahead of Sun at sunrise on some day, the previous *Tithi* is considered to exist on that day as well. This absurdity sometimes makes one *Tithi* occur twice, consecutively, and results in complete omission of the *Tithi* that should have otherwise been on that day, giving rise to *Tithi* sequences like the (12th, Extra 12th, 14th) or like the (13th, Extra 13th, 15th). With such a system, there is no hope of ever being able to correctly calculate a historical *Tithi*. Everyday calculation to check if the Moon has progressed another 12° ahead of the Sun, at the time of sunrise, may not appear difficult in today's age of computers but it would certainly be quite a cumbersome and futile exercise for the people of the Vedic era who always preferred simplicity to complexity. Quite fortunately, that's not how the *Tithi* were counted in the times before the *Siddhānta* period of *Vṛddha Garga* & *Āryabhaṭṭa*.

As per the Vedic scheme, the *Tithi* should be understood to be a continuous incremental count, from the first day of a *Pakṣa* (Lunar Fortnight), to its last day which may be the Full Moon day or the New Moon day. No *Tithi* is ever omitted in the middle of a *Pakṣa*. Only the 15th *Tithi* can get omitted automatically if the Full Moon day or the New Moon day is to fall on the 14th counted day. For example, if the Full Moon day was to occur on the 14th day from the first *Tithi* of the bright fortnight, that 14th day will be known as the *Śukla Caturdaśī* (14th of the Bright-Half) as well as the *Pūrnimā* (Full Moon Day). And if the New Moon day was to occur on the 15th day from the first *Tithi* of the dark fortnight, that 15th day will

be known as the *Kṛṣṇa Pañcadaśī* (15th of the Dark-Half) as well as the *Amāvasyā* (New Moon Day). This is the true scheme of *Tithi* in the Vedic design. So, when it is said that *Kṛṣṇa* was born on a *Kṛṣṇa Aṣṭamī* (8th *Tithi* of the Dark Fortnight) day, it means that he was born on the 8th counted day of a dark fortnight. The names of various *Tithi* are given below:

Day	Pakṣa (Any Fortnight)	Śukla Pakṣa (S, Bright Fortnight)	Kṛṣṇa Pakṣa (K, Dark Fortnight)
1 st	<i>Prathamā</i>	Śukla <i>Prathamā</i> (S01)	<i>Kṛṣṇa Prathamā</i> (K01)
2 nd	<i>Dvitiyā</i>	Śukla <i>Dvitiyā</i> (S02)	<i>Kṛṣṇa Dvitiyā</i> (K02)
3 rd	<i>Trtīyā</i>	Śukla <i>Trtīyā</i> (S03)	<i>Kṛṣṇa Trtīyā</i> (K03)
4 th	<i>Caturthī</i>	Śukla <i>Caturthī</i> (S04)	<i>Kṛṣṇa Caturthī</i> (K04)
5 th	<i>Pañcamī</i>	Śukla <i>Pañcamī</i> (S05)	<i>Kṛṣṇa Pañcamī</i> (K05)
6 th	<i>Ṣaṣṭhī</i>	Śukla <i>Ṣaṣṭhī</i> (S06)	<i>Kṛṣṇa Ṣaṣṭhī</i> (K06)
7 th	<i>Saptamī</i>	Śukla <i>Saptamī</i> (S07)	<i>Kṛṣṇa Saptamī</i> (K07)
8 th	<i>Aṣṭamī</i>	Śukla <i>Aṣṭamī</i> (S08)	<i>Kṛṣṇa Aṣṭamī</i> (K08)
9 th	<i>Navamī</i>	Śukla <i>Navamī</i> (S09)	<i>Kṛṣṇa Navamī</i> (K09)
10 th	<i>Daśamī</i>	Śukla <i>Daśamī</i> (S10)	<i>Kṛṣṇa Daśamī</i> (K10)
11 th	<i>Ekādaśī</i>	Śukla <i>Ekādaśī</i> (S11)	<i>Kṛṣṇa Ekādaśī</i> (K11)
12 th	<i>Dvādaśī</i>	Śukla <i>Dvādaśī</i> (S12)	<i>Kṛṣṇa Dvādaśī</i> (K12)
13 th	<i>Trayodaśī</i>	Śukla <i>Trayodaśī</i> (S13)	<i>Kṛṣṇa Trayodaśī</i> (K13)
14 th	<i>Caturdaśī</i>	Śukla <i>Caturdaśī</i> (S14)	<i>Kṛṣṇa Caturdaśī</i> (K14)
15 th	<i>Pañcadaśī</i>	Śukla <i>Pañcadaśī</i> (S15)	<i>Kṛṣṇa Pañcadaśī</i> (K15)
16 th	<i>Ṣoḍaśī</i>	Śukla <i>Ṣoḍaśī</i> (S16)	<i>Kṛṣṇa Ṣoḍaśī</i> (K16)

Table 1.4
The *Tithi* Names

4.2 Nakṣatra

The 27 divisions of Zodiac are known as the 27 *Nakṣatrā*. There is also an additional *Nakṣatra*, the *Abhijit Nakṣatra*, which is designed to act only as a placeholder and inserted after *Nakṣatra* No. 19 (count starts with *Kṛttikā Nakṣatra*). The *Nakṣatrā* are the sole basis of all Vedic astronomical and astrological observations and their list is provided in the *Purāṇā*, the *Vedāṅga Jyotiṣa*, the *Mahābhārata*

(at 13.64, 13.99) and most other Vedic texts. *Bhiṣma* had recounted this list as originally narrated by the sage *Nārada* to *Kṛṣṇa*. Now, as per all Vedic texts, *Kṛttikā* is the first *Nakṣatra* but during the *Siddhānta* period of *Vṛddha Garga* and *Āryabhaṭṭa*, the astronomers started their count from *Aśvinī* as the Vernal Equinox point (the start of Aries) was then near it. Later, from 600-900 CE, some Indian (*Varāhamihira*) and Muslim astronomers started mistaking the start of *Aśvinī* to be that of Aries as well, a misconception that perpetuated in India with the coming of Mughals. This mistake resulted in the original *Nakṣatra* Zodiac (*Aśvinī* $3^{\circ}20'$ = Aries 0°) being forwarded by a quarter *Nakṣatra* (*Aśvinī* 0° = Aries 0°).

No.	<i>Nakṣatra</i>	Vedic god	No.	<i>Nakṣatra</i>	Vedic god
1	<i>Kṛttikā</i>	<i>Agni</i>	15	<i>Anurādhā</i>	<i>Mitra</i>
2	<i>Rohiṇī</i>	<i>Prajāpati</i> (<i>Brahmā</i>)	16	<i>Jyeṣṭhā</i>	<i>Indra</i>
3	<i>Soma</i>	<i>Soma/ Candra</i>	17	<i>Mūla</i>	<i>Nairta</i>
4	<i>Ārdrā</i>	<i>Rudra</i>	18	<i>Pūrvā Āśāḍha</i>	<i>Āpa</i>
5	<i>Punarvasu</i>	<i>Aditi</i>	19	<i>Uttarā Āśāḍha</i>	<i>Vaiśvadeva</i>
6	<i>Puṣya</i>	<i>Bṛhaspati</i>	20	<i>Abhijit</i>	<i>Brahmā</i>
7	<i>Āśleṣā</i>	<i>Sarpa</i>	21	<i>Śrāvana</i>	<i>Viṣṇu</i>
8	<i>Maghā</i>	<i>Pitṛ</i>	22	<i>Dhaniṣṭhā</i>	<i>Vāsava (Indra)</i>
9	<i>Pūrvā Phālguni</i>	<i>Bhaga</i>	23	<i>Śatabhiṣā</i>	<i>Varuṇa</i>
10	<i>Uttarā Phālguni</i>	<i>Aryaman</i>	24	<i>Pūrvā Bhādrā</i>	<i>Aja Ekapāda</i> (a <i>Rudra</i>)
11	<i>Hasta</i>	<i>Savita / Savitṛa</i>	25	<i>Uttarā Bhādrā</i>	<i>Ahibudhanya</i> (a <i>Rudra</i>)
12	<i>Citrā</i>	<i>Tavaṣṭā</i>	26	<i>Revatī</i>	<i>Pūṣan</i>
13	<i>Svāti</i>	<i>Vāyu</i>	27	<i>Aśvinī</i>	<i>Aśvin</i>
14	<i>Viśākhā</i>	<i>Indrāgnī</i>	28	<i>Bharanī</i>	<i>Yama</i>

Table 1.5
The *Nakṣatrā*

The *Puṣya Nakṣatra*, the most holy *Nakṣatra*, is also known as the *Puṇya Nakṣatra*; the *Uttarā Phālguni* is sometimes known as only the *Uttarā*. The *Pūrvā Bhādrā* and *Uttarā Bhādrā* *Nakṣatrā* were

earlier known as *Pūrvā Proṣṭhapadā* and *Uttarā Proṣṭhapadā* respectively. The Vedic tool of analyzing the planetary positions is the *Sarvato Bhadra Cakra* (*SBC*), a 7x7 matrix with extended outer rows, as also shown below. The discovery of *SBC* as the Vedic Nakṣatra analysis tool occurred when I read in the *Mahābhārata* that a *Sarvato Bhadra Cakra* was fixed on the seat of *Yudhiṣṭhīra* during his coronation bath after the war¹⁹. All the planetary positions described in *Rāmāyaṇa* and *Mahābhārata* become crystal-clear the moment they are marked down on the *SBC* chart.

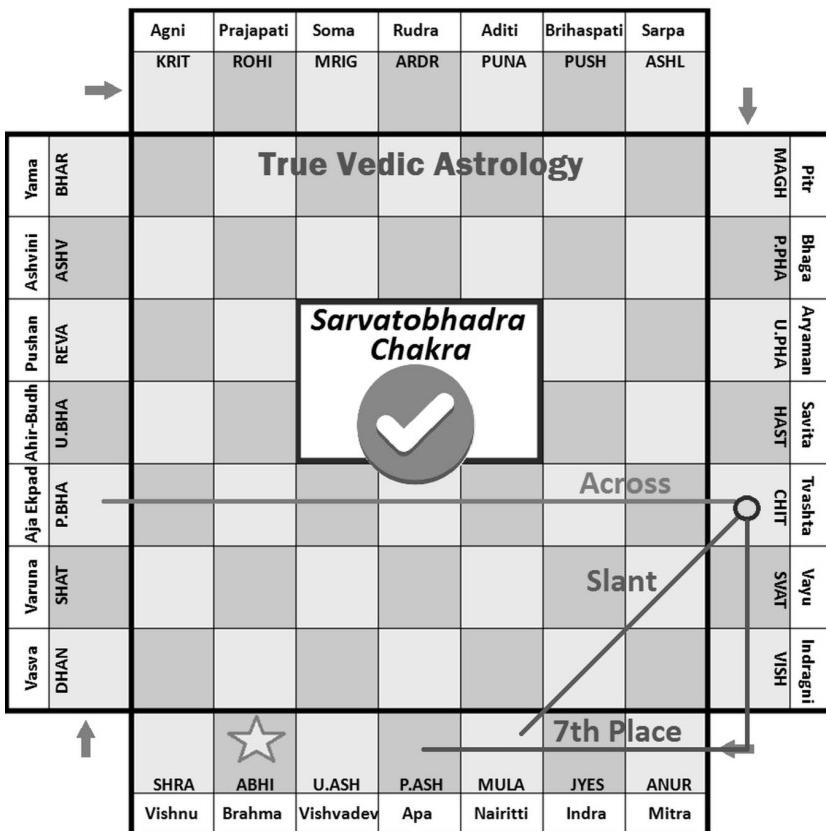


Figure 1.4
The *Sarvato Bhadra Cakra* (*SBC*)

¹⁹ व्याघ्रचर्मोत्तरे शुक्ले सर्वतोभद्र आसने ।

दृष्टपाद प्रतिष्ठाने हुताशन समत्विपि ॥ MB 12.40.13

On the SBC, all planets cast 3 types of aspects: directly across (direct), to their diagonals (slant) and to the 7th position from their place (peripheral). *Rāhu* and *Ketu*, the North & South Nodes of Moon, being always retrograde, cast their peripheral aspects backwards (anti-clockwise). The *Nakṣatrā* are written down clockwise starting with the top-left box in the extended top row. The top-left position is chosen as first because, in the Vedic culture, all beginnings take place from left to right and from top to bottom. The *Kṛttikā Nakṣatra*, the first of the *Nakṣatrā*, is thus written down in the top-left box. Now, as there are 28 places (4*7) available against 27 *Nakṣatrā*, a placeholder *Nakṣatra* was introduced directly opposite *Rohiṇī*, the *Nakṣatra* of *Prajāpati* (*Brahmā*), and *Brahmā* himself was made its deity. This was the *Abhijit Nakṣatra* that is only a placeholder with a zero span; it always stays blank and is not considered in any *Nakṣatra* count.

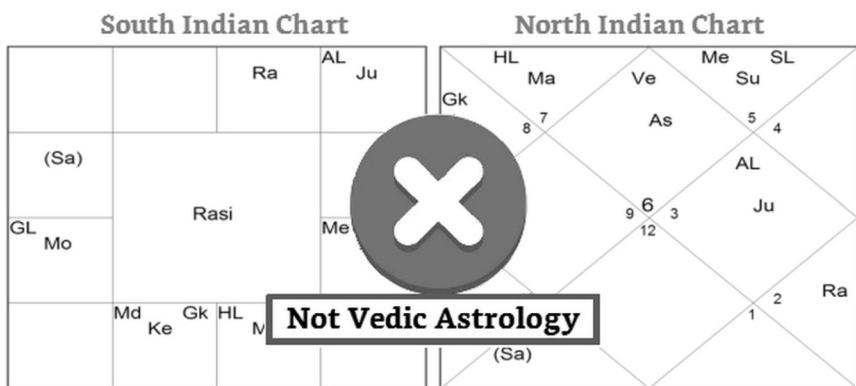


Figure 1.5
12-Sign Zodiac Charts

The true Vedic Astrology utilizes only the *Nakṣatrā*, the proper tool for analyzing which is the *Sarvato Bhadra Cakra* (*SBC*) chart. Other tools such as the popular North and South Indian *Rāśi* charts²⁰, which evolved from the 12-Sign Zodiac of ultimately

²⁰ It's now about 2000 years since the basic 12-Sign Zodiac of the *Yavānā* was adopted in India and mixed with the *Nakṣatra* system, giving rise to

Greek origin, have nothing to do with the Vedic scheme of Astrology. Being thus mistaken, the most present-day Indian astrologers, call the *Rāśi* Astrology as Vedic Astrology.

All the generally visible zodiacal stars of the *Nakṣatrā* are detailed in Appendix A. As the planetary positions are stated against the *Nakṣatrā*, all the planets are listed below:

No.	Planet	Notation	Samskr̥t Names	Daśā Years
1	Sun	Su	<i>Sūrya, Pāvaka</i>	6
2	Moon	Mo	<i>Candra, Soma</i>	15
3	Mercury	Me	<i>Buddha, Śyāmo-Graha</i> (Dark Planet)	17
4	Venus	Ve	<i>Śukra, Śveto-Graha</i> (White Planet)	20
5	Mars	Ma	<i>Kuja, Aṅgāraka, Lohitāṅga</i>	8
6	Jupiter	Ju	<i>Guru, Bṛhaspati, Pāvakaprabha</i>	19
7	Saturn	Sa	<i>Śani, Śanaiścara, Sūryaputra, Sauri</i>	10
8	Rāhu*	Ra	<i>Rāhu, Rāhuṇā</i>	12
9	Ketu*	Ke	<i>Ketu, Sadhūma</i>	13
Asteroids		<i>Dhūmaketu</i> (lit. "having a Smoky Tail")		

*Rāhu and Ketu are respec. the north and south nodes of Moon.

Table 1.6
The Planets and their Names

I also find that there are no detailed texts available for predictions through the *Nakṣatra* system, a few that exist lack authority as they

a unique hybrid form of Astrology that may be called “*Rāśi* Astrology” but certainly not “Vedic Astrology”. This “*Rāśi* Astrology” has evolved further with the introduction of many native timing methods (*Daśā*) and subsystems such as the KP (*Kṛṣṇamūrti Paddhati*). There are many excellent astrologers capable of giving stunningly accurate predictions based on this *Rāśi* Astrology alone.

have the 12-Sign Zodiac system mixed in. This may be so because in ancient India, fortune-telling was discouraged as a lowly activity by the high Brahmins according to whom the ultimate goal in life for a Brahmin was the attainment of the Self by acquisition of true knowledge. The astrological texts such as the *Bṛhad Parāśara Horā Saṃhitā* that otherwise attribute their origin to much-earlier sages such as *Parāśara* and *Bhṛgu* are in reality the compositions of their descendants in the post-*Mahābhārata* period. If the original *Parāśara* would have known anything about the 12-Sign Zodiac, wouldn't his son *Vedavyāsa* have mentioned a little of it in the *Mahābhārata*? The same goes for *Bhṛgu Saṃhitā*. All such works based on the 12-Sign Zodiac were composed in the earlier part of first millennium when the *Yavanā* modified the 12-Sign Zodiac of Greek-origin to include the Vedic gods.

Now, we come across the text *Bhadrabāhu Saṃhitā* compiled by a Jain monk named *Bhadrabāhu* who lived about [433 BCE, 357 BCE]. Although it seems to contain some later mix-up of the 12-Sign Zodiac, that part can be ignored and only the *Nakṣatra* part thereof can be taken up. The verses of *Bhadrabāhu Saṃhitā* are of the same lyrical style of *Saṃskṛt* as seen in the *Mahābhārata* text²¹. On examination of its content, it can be said that this work looks to be more Vedic than Jain by its composition style and that, in this text, *Bhadrabāhu* has only compiled the commonly known *Nakṣatra* omens of his age. So, the *Bhadrabāhu Saṃhitā* is a good choice to gain insight in the predictive part of the *Nakṣatra* system. The *Bṛhad Saṃhitā* of *Varāhamihira*, composed another 1000 years later, may also be referenced similarly.

²¹ यदा तु त्रीणि चत्वारि नक्षत्राणि शनैश्चरः ।
मन्दवृष्टिं च दुर्भिक्षं शस्त्रं व्याधिं च निर्दिशेत् ॥ BBS 16.8
अपसव्यं नक्षत्रस्य यस्य याति शनैश्चरः ।
स च राजा विपद्येत दुर्भिक्षं भयमेव च ॥ BBS 16.16
गृहणीयादेकमासेन चन्द्रसूर्यौ यदा तदा ।
रुधिरवर्णसंसक्ता सङ्ग्रामे जायते मही ॥ BBS 20.50

4.3 *Muhūrta*

Other than the *Tithi* and the *Nakṣatra*, the *Muhūrta* remains the most used Vedic time unit in use even today since all important work is undertaken only in a proper *Muhūrta* that is conducive to the nature of work under consideration. It's commonly known that there are 15 *Muhūrtā* each, in the daytime and the nighttime. But by this, only the quantity of *Muhūrtā* is meant and not their actual scheme. It is erroneously believed by some that the first *Muhūrta* starts with the sunrise itself, as they align the middle of 8th *Muhūrta* with the local noon point. The *Skanda Purāṇa* makes it sufficiently clear that the 8th *Muhūrta*, also known as the *Kutapa* (*Abhijit*), starts at the exact local noon when the Sun is directly overhead:

अहनो मुहूर्ता विष्याता दशपञ्च च सर्वदा ।
तत्र अष्टमो मुहूर्तो यः स कालः कुतपः स्मृतः ॥ SP 7.205.6
मध्याह्ने सर्वदा यस्माद् मन्दीभवति भास्करः ।
तस्माद् अनन्तफलदः तद् आरम्भो भविष्यति ॥ SP 7.205.7

*In the daytime, the Muhūrta, it is known, are 15 always,
Of those, this 8th Muhūrta, which time is known as Kutapa;
In the middle of the day, always when the Sun slows down,
There at, (this) greatly rewarding (Muhūrta), then it begins.*

The *Mahābhārata* text also states²² the same. And, as we will notice in the sections ahead, this is along the expected lines, since this very scheme applies to the day of *Brahmā* as well. Starting with a sunrise, the scheme of *Muhūrta* is as follows: 1) ½ *Muhūrta* after sunrise 2) 14 *Muhūrtā* of daytime 3) ½ *Muhūrta* before sunset 3) ½ *Muhūrta* after sunset 4) 14 *Muhūrtā* of nighttime 5) ½ *Muhūrta* before sunrise.

²² दिवसस्याष्टमे भागे मन्दीभवति भास्करे ।
स कालः कुतपो नाम पितृणां दत्तमक्षयम् ॥ MB 1.87.31

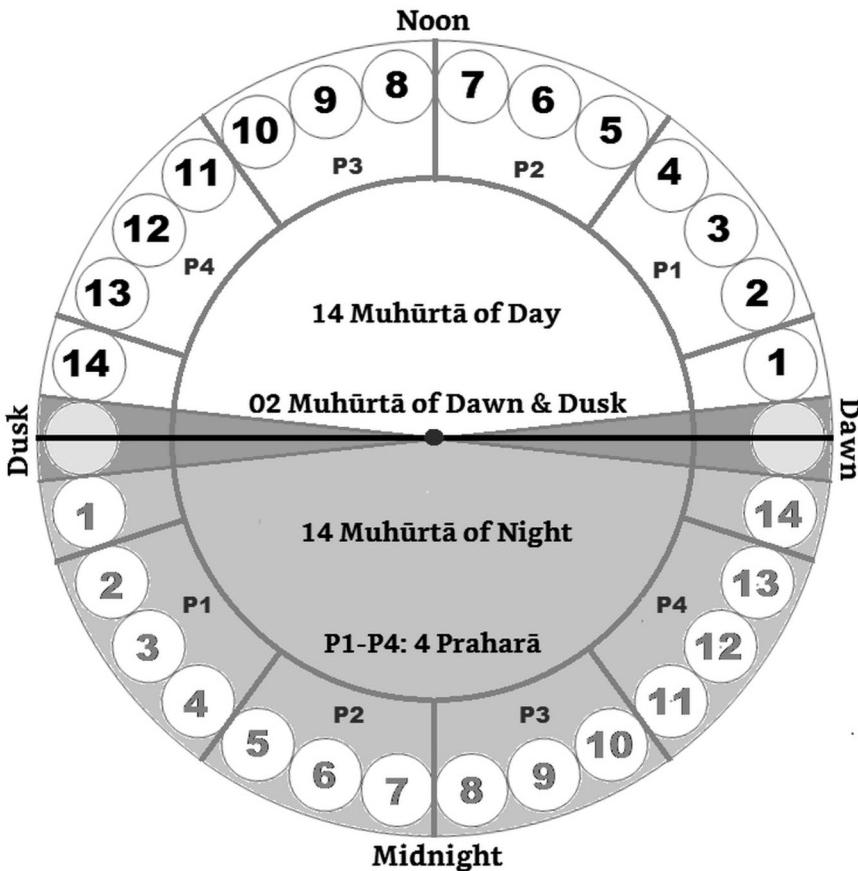


Figure 1.6
The *Muhūrta* Scheme

This scheme of *Muhūrta* becomes further clear when the *Harivamśa Purāṇa*, a part of *Mahābhārata* text, states that *Kṛṣṇa* was born at midnight when the *Abhijiti Muhūrta* commenced. The *Abhijiti Muhūrta* is the 8th *Muhūrta* of the night and hence the nighttime counterpart of *Abhijit Muhūrta*. It starts at the exact moment of the local²³ midnight.

²³ Points of Local midnight/noon can be calculated as middle points of Sunrise & Sunset and are not equal to 12:00 am/pm by the watch. On the day of *Kṛṣṇa*'s birth (Jul 18, 894 BCE) in Mathura, the local midnight, the time of *Abhijiti Nakṣatra*, at Mathura, started at 00:18:05 IST.

देवकी अजनयद् विष्णुं यशोदा तां तु दारिकाम् ।
मुहूर्ते अभिजिति प्रासे सार्धरात्रे विभूषिते ॥ HP 2.4.14

*Devakī then gave birth to Viṣṇu (Krṣṇa) and Yaśodā to that girl,
When the Muhūrta Abhijiti commenced, decorated by the Midnight.*

When the day and night are not equal, the *Muhūrtā* are of varying length and calculated as per the actual duration of day/night, except the two *Muhūrtā* of Dawn and Dusk which are always of fixed duration of 48 minutes each. The *Muhūrtā* are also grouped in threes under a term known as the *Prahara*. Although, mathematically, there are 10 *Prahara* in the entire day (30/3), but only 8 *Prahara* (4 of the daytime²⁴, 4 of the nighttime) are practically considered, excluding the two *Prahara* of the dawn and dusk. The time of dawn & dusk is not considered auspicious for any work other than prayers and meditation, activities that have the neutralization of all dualities as their goal.

All thirty *Muhūrtā* have distinct names but nowadays hardly any are remembered other than the *Abhijit Muhūrta* and the *Brahma Muhūrta*, the 14th *Muhūrta* of nighttime. *Brahma Muhūrta* is said to be highly conducive to meditation and *Abhijit Muhūrta* is said to be appropriate for all activities except undertaking travel in the south direction. In the *Purāṇā*, the names of all thirty *Muhūrtā* are not stated in one place. Some *Muhūrtā* are known from the historical epics, like that of *Vinda* and *Vijaya* from *Rāmāyaṇa* and that of *Maitra* and *Abhijit* from *Mahābhārata*. *Maheśvara Tīrtha*, in his commentary²⁵ of the *Rāmāyaṇa* (at RM 3.68.12-13) quotes the *Purāṇā* and states the names of all 15 *Muhūrtā* of the daytime:

²⁴ P1:(M2,M3,M4), P2:(M5,M6,M7), P3:(M8,M9,M10), P4:(M11,M12,M13)

²⁵ The verses 3.68.12 and 3.68.13 of the *Rāmāyaṇa* quote the great bird *Jāṭāyu*, in his telling *Rāma*, immediately after *Sītā*'s kidnapping by *Rāvaṇa*, that he will get his wife *Sītā* back since *Rāvaṇa* kidnapped her in a *Muhūrta* named as *Vinda* (11th *Muhūrta* of Day, also known as *Vijaya*) in which any riches lost are soon restored to their owner.

स च एकादशो मुहूर्तः । मुहूर्तलक्षणं तृकं पुराणे -

"रौद्रः श्वेतश्च मैत्रश्च तथा सारभटः स्मृतः ।

सावित्रो वैश्वदेवश्च गान्धर्वः कुतपस्तथा ॥

रौहिणस्तिलकश्चैव विजयो नैऋतस्तथा ।

शम्बरो वारुणश्चैव भगः पञ्चदशः स्मृतः ॥"

इत्येते अहिन मुहूर्ताः । अत्र विजयस्यैव नामान्तरं विन्द इति ज्ञेयम् ॥

That is the 11th Muhūrta. Muhūrta omens, as per Purāṇā are -

"Raudra, Śveta, Maitra and Sārabhaṭa are known,

Savitra, Vaiśvadeva, Gandharva and Kutapa.

Rohiṇī, Tilaka, Vijaya and Nairṛta,

Śambara, Varuṇa and Bhaga, (these) 15 are known."

These are the daytime Muhūrtā. Here, Vijaya's another name is also known as Vinda.

In their separate commentaries on the verse 2.89.21 of *Rāmāyaṇa*, four different scholars (*Govindrāja* in his *Bhūṣaṇa*, *Maheśvara Tīrtha* in his *Tatvadīpikā*, *Nāgeśa Bhaṭṭa* in his *Tilaka* and *Śivasahāya* in his *Śiromani*) quote the following verse attributed to *Bṛhaspati*, the teacher of gods, which gives the 15 *Muhūrtā*:

रौद्रः सार्पस्तथा मैत्रः पैत्रो वासव एव च ।

आप्यो वैश्वस्तथा ब्राह्मः प्राजेशेन्द्रास्तथैव च ॥

ऐन्द्राग्नो नैऋतश्चैव वारुणार्यमणौ भगी ।

एतेऽहिन क्रमशो ज्ञेया मुहूर्ता दशपञ्च च ॥

(1) Raudra, (2) Sarpa and (3) Maitra, (4) Pitr (5) Vasu,

(6) Āpa, (7) Vaiśva(deva), (8) of Brahmā (Abhijit), (9) of lord of Masses (Rohiṇī, Prajāpati) and (10) Indra,

(11) Indrāgni, (12) Nairṛta, (13) Varuṇa, (14) Aryaman, (15) Bhagī.

All these, of the daytime, know to be the 15 Muhūrtā.

There are some differences it seems. Al-Biruni also provides the names of all the 30 *Muhūrtā* in his book (Chapter 34), as he had noted down in 1031 CE, with a little error though, at No. 4-6. Tallying all these inputs, we are able to compile the names of all 14 *Muhūrtā* of daytime. As for the names of nighttime *Muhūrtā*,

some names are provided at few places but they largely seem to be made up. The nighttime *Muhūrtā* look to be the feminine counterparts of the daytime *Muhūrtā*, as evident from the midnight *Nakṣatra* of *Abhijiti* (*Kṛṣṇa*'s birth) and midday *Nakṣatra* of *Abhijit*. Two *Muhūrtā* of dawn and dusk are known as *Bhaga* and *Bhagī* respectively and excluded from the list given below:

No.	Pre-Noon <i>Muhūrta</i>	No.	Post-Noon <i>Muhūrta</i>
1	<i>Raudra / Śiva</i>	8	<i>Abhijit / Kutapa</i>
2	<i>Śveta / Sarpa</i>	9	<i>Rohiṇa</i>
3	<i>Maitra</i>	10	<i>Tilaka / Bala / Indra</i>
4	<i>Pitr / Sārabhaṭa</i>	11	<i>Vijaya / Vinda / Indrāgni</i>
5	<i>Vasu</i>	12	<i>Nairta / Rākṣasa</i>
6	<i>Savitra / Āpa</i>	13	<i>Śambara / Varuṇa</i>
7	<i>Vaiśvadeva</i>	14	<i>Aryaman / Saumya</i>

Table 1.7
Muhūrtā of the Daytime

4.4 *Samvatsara*

The Vedic lunisolar year, counted from first month of *Māgha* to the last month of *Pauṣa*, or *Pauṣa* (*Ādhika*), is known as the *Samvatsara* or the *Varṣa*. By the Vedic calendar design, the first month of *Māgha* oscillates about the winter solstice and it may or may not begin with the exact day of winter solstice. In this book, wherever the use of modern years such as 1331 BCE or 827 BCE is employed for the *Samvatsarā*, it means the year/*Samvatsara* that existed in its middle. For example, the year/*Samvatsara* of 253 CE actually started in 252 CE (on 20.12.252) but as its middle falls in 253 CE, it was the year/*Samvatsara* of 253 CE.

Generally, there are 12 lunar months in the *Samvatsara* but periodically an intercalary month known as the *Ādhika Māsa*, as indicated by suffixes (IC) or (*Ādhika*), is introduced under pre-

defined rules to match the *Samvatsara* cycle to the point of winter solstice. Five *Samvatsarā* are collectively known as a *Yuga* in which there are two intercalary months, the first one is *Ādhika-Āṣāḍha* (Intercalary *Āṣāḍha*), that is always inserted before the regular 6th month of *Āṣāḍha* in the 3rd *Samvatsara*, and the second one is *Ādhika-Pauṣa* (Intercalary *Pauṣa*), that is always appended to the 12th month of *Pauṣa* in the 5th *Samvatsara*. With only this much, no other intercalation is ever required but only the second intercalary month of *Ādhika-Pauṣa* is periodically dropped under pre-defined rules to resynchronize the start of *Māgha* month with winter solstice, as elaborated in sections ahead. The 12 lunar months are as follows, as also provided in the *Viṣṇu Purāṇa*²⁶:

No.	Vedic Name	Present Name	No.	Vedic Name	Present Name
1	<i>Tapa</i>	<i>Māgha</i>	7	<i>Nabha</i>	<i>Śrāvaṇa</i>
2	<i>Tapasya</i>	<i>Phālguna</i>	8	<i>Nabhasya</i>	<i>Bhādrapada</i>
3	<i>Madhu</i>	<i>Caitra</i>	9	<i>Isha</i>	<i>Kārtika</i>
4	<i>Mādhava</i>	<i>Vaisākha</i>	10	<i>Aja</i>	<i>Aśvin</i>
5	<i>Indra</i>	<i>Jyeṣṭha</i>	11	<i>Saha</i>	<i>Mārgaśīrṣa</i>
6	<i>Śuci</i>	<i>Āṣāḍha</i>	12	<i>Sahasya</i>	<i>Pauṣa</i>

Table 1.8
The Lunar Months of *Samvatsara*

Now, a *Samvatsara* never starts with the lunar month of *Caitra*, as has become the present day practice in India. *Caitra* is the 3rd lunar month as per Vedic texts and it doesn't even fall on an equinox or a solstice, how can it start a year? This absurdity has its origin in *Āryabhaṭṭa*, for, following the principles of the *Yavānā*, he has dated the start of his *Kali-Yuga* at *Caitra S01* of 3102 BCE, as stated in his *Āryabhaṭṭīyam*:

²⁶ तपस्तपस्यौ मधुमाधवौ च शुक्रः शुचिश्वायनमुत्तरं स्यात् ।
नभोनभस्यौ च इषस्तथाजस्सहःसहस्याविति दक्षिणं तत् ॥ VP 2.8.81

युगवर्षमासदिवसा: समं प्रवृत्तास्तु चैत्रशुक्लादेः ।
कालोऽयमनाद्यन्तो ग्रहभैरनुमीयते क्षेत्रे ॥ AB 3.11

*The Yuga, the Varṣa, the Māsa and the Tithi, all began on start of Caitra month's bright fortnight;
This time, which is without a beginning and an end, is measurable with (the help of) planets and the ecliptic.*

It will also be shown in the next chapter that not only the Vedic civilization but also its offshoot civilizations, that of Egypt and Mesopotamia, used this Vedic calendar as well:

No.	Vedic Months	Mesopotamian Months	Egyptian (Seasonal-Religious) Months	Eng. Months
1	<i>Māgha</i>	Shabatu	1P-Mehir	~Jan
2	<i>Phālguna</i>	Adaru	2P-Pamenotep	~Feb
3	<i>Caitra</i>	Nisanu	3P-Parmuti	~Mar
4	<i>Vaisākha</i>	Ayaru	4P-Pahons	~Apr
5	<i>Jyeṣṭha</i>	Simanu	1S-Paoni	~May
6	<i>Āṣāḍha</i>	Dumuzu	2S-Epipi	~Jun
7	<i>Śrāvāṇa</i>	Abu	3S-Mesore	~Jul
8	<i>Bhādrapada</i>	Ululu	4S-Thoth	~Aug
9	<i>Aśvin</i>	Tashritu	1A-Paopi	~Sep
10	<i>Kārtika</i>	Arahsamnu	2A-Hathor	~Oct
11	<i>Mārgaśīrṣa</i>	Kislimu	3A-Koyak	~Nov
12	<i>Pauṣa</i>	Tabetu	4A-Teobi	~Dec

Table 1.9
Vedic Calendar across Various Civilizations

In India, there are six seasons; these are tied with only the solstices and the equinoxes. Starting at winter solstice point, the six seasons are *Śiśira* (winters), *Vasanta* (spring), *Grīṣma* (summers), *Varṣā* (rains), *Śarada* (autumn) and *Hemanta* (pre-winters). Roughly, each season is about 60.87 days but their starting points can be calculated quite accurately as the time when the longitudes of Sun are 270° , 330° , 30° , 90° , 150° and 210° respectively. If the starting

point of a season thus derived falls before the local noon that day, the same day is first day of season else its the next day.

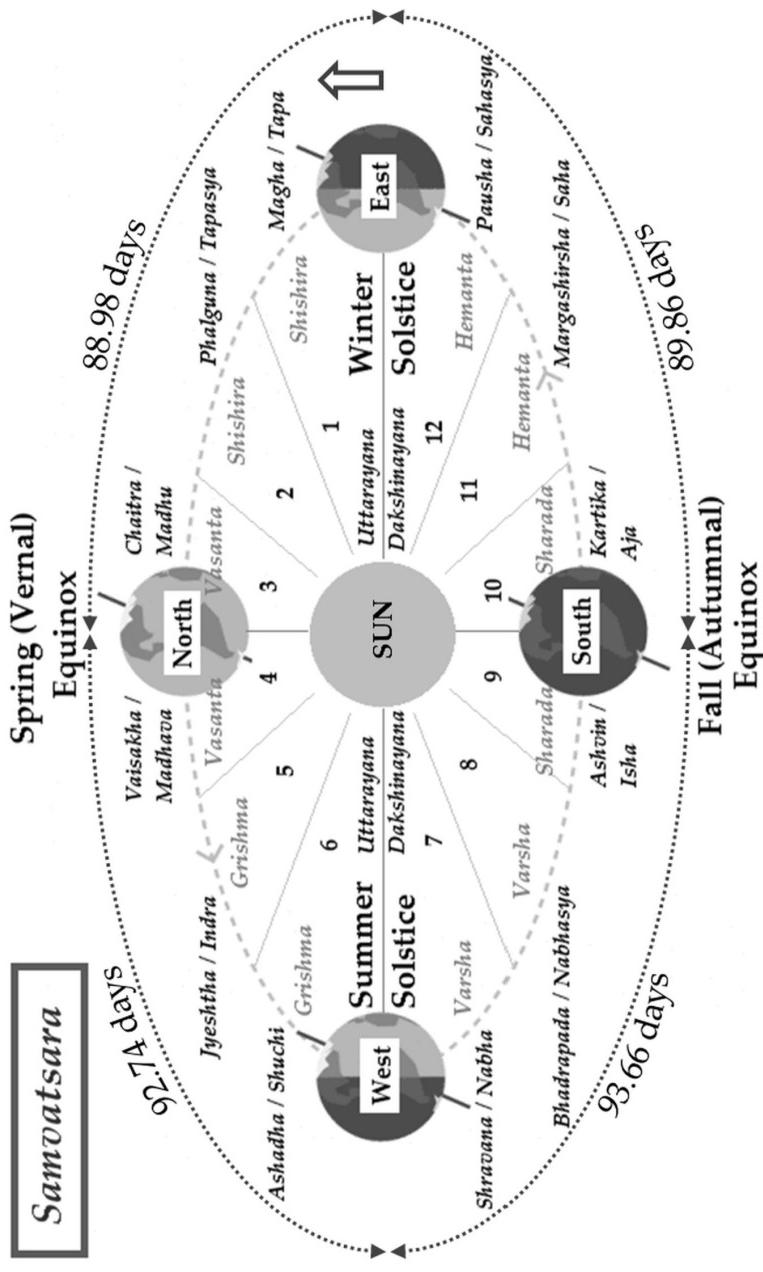


Figure 1.7

The Scheme of *Samvatsara*

One half of the year, from the first computed date of *Māgha*²⁷ month to the last day of regular *Āśāḍha* month is known as the *Uttarāyana* (northern course) and the other half is known as the *Dakṣiṇāyana* (southern course). During the period of *Uttarāyana*, the Earth traverses the northern half of the solar system, from its East to its West. The winter solstice point is considered the eastern direction of the solar system because the *Samvatsara* (year) begins about it²⁸. It should also be understood that the *Uttarāyana* doesn't start with Vernal Equinox, as is commonly believed. This misunderstanding is again based on a wrong belief of *Āryabhaṭṭa*²⁹. A *Samvatsara*, as well as the *Yuga*, always starts only around the winter solstice, even as is the clear opinion of *Brahmā* himself, as quoted of him in the *Mahābhārata*:

यदादिमध्यपर्यन्तं ग्रहणोपायमेव च ।
 नामलक्षणसंयुक्तं सर्वे वश्यामि तत्त्वतः ॥ MB 14.44.1
 अहः पूर्वं ततो रात्रिमर्सिः शुक्लादयः स्मृताः ।
 श्रवणादीनि क्रृक्षाणि क्रृतवः शिशिरादयः ॥ MB 14.44.2

*Their beginning, middle and end, and the way to use them,
along with their names and traits, all will I tell, as it is.*

*"Day is before, then the night; for the month, bright fortnight is first,
Śrāvāṇa is (now) first of the Nakṣatrā; of the seasons, winters are first."*

²⁷ In actual practice, the first computed date of the lunar month of *Māgha* is considered the first date of *Uttarāyana* and that of *Samvatsara* as well, even though the winter solstice point may or may not coincide with the first *Tithi* of *Māgha* month.

²⁸ In the Vedic culture, the beginning always represents the east: the day begins in the east with the Sunrise; the direction in which the Ascendant rises is again east and so on.

²⁹ *Āryabhaṭṭiyam* 4.16-17. *Āryabhaṭṭa* assumes that the gods live on the North Pole and that the *Asurā* live on the South Pole as the duration of days and nights there is of six months. Why the gods, or anyone else for that matter, would want to live in inhuman subfreezing temperatures in barren lands when they can choose to live in one of the many other pleasant places on Earth that are free from the dualities?

Presently, there are two Indian traditions of reckoning the end of lunar month. The northern tradition, with its roots in the theories of Āryabhaṭṭa, ends the month with the Full Moon Day and is known as the *Pūrnimānta* system. The southern tradition, which is more true to the Vedic tradition, ends the month with the New Moon Day and is known as the *Amānta* system. The Vedic tradition, without exception, has always been *Amānta*. The lunar month and the *Samvatsara* always start on a day next to the New Moon Day and always end with a New Moon Day. The *Pūrnimānta* system is an absurd invention of Āryabhaṭṭa who, devoid of the knowledge of Vedic texts, ended the month with full moon. It seems that he noticed the vernal equinox point falling next to a full moon day in making this assumption:

स्फुटशशि मासान्तेऽर्कं पातासन्नो यदा प्रविशतीन्दुः ।
भूच्छायां पक्षान्ते तदाधिकोनं ग्रहणमध्यम् ॥ AB 4.38

*The fully-manifest moon at month's end, (or when) it falls near the Sun, or when enters the Moon,
Into the Earth's shadows, at the end of a Lunar fortnight, then, more or less,
it is in an Eclipse.*

4.5 *Yuga*

In common parlance, the word *Yuga* generally means an epoch or a significant time period, e.g., an ice age would be called *Hima-Yuga* and a stone age would be called *Pāśāṇa-Yuga* and so on. But in the sense of calendar, the word *Yuga* unambiguously means a 5 year period as stated in the *Purāṇā* or in the *Rgveda* about sage *Dirghatamā* or in the very first verse of *Vedāṅga Jyotiṣa*:

दीर्घतमा मामतेयो जुजुवन्दशमे युगे ।
अपामर्थं यतीनां ब्रह्माभवति सारथिः ॥ RV 1.158.6

*Dirghatamā, the son of Mamta, became old (even) in his 10th Yuga,
For the last stage of that sage, the (light of) Brahma became his guide.*

पञ्चसंवत्सरमयं युगाध्यक्षं प्रजापतिम् ।
दिनत्वर्यनमासाङ्गं प्रणस्य शिरसा शुचिः ॥ VJ 1
माघशुक्ल प्रपन्नस्य पौषकृष्ण समापिनः ।
युगस्य पञ्चवर्षस्य कालज्ञानं प्रचक्षते ॥ VJ 5
Prajāpati, the embodiment of Yuga of five Samvatsarā, the Days and the Months are whose limbs, I salute with bent head. With Māgha Śukla (Pakṣa) it starts, in Pauṣa Kṛṣṇa (Pakṣa) it ends, Of this Yuga, of 5 Years, the knowledge of its time, so regards (to be true).

पञ्चारे चक्रे परिवर्तमाने तस्मिन्ना तस्थुर्भुवनानि विश्वा ।
तस्य नाक्षस्तप्यते भूरिभारः सनादेव न शीर्यते सनाभिः ॥ RV 1.164.13
On this five-spoked wheel, that is ever-revolving, never stationary, all beings of the world are dependent.
Its Axle, is never heated, even though heavy-laden, from times immemorial, (it's been running), its nave doesn't wear-out.

In general sense, *Samvatsara* means a lunisolar year but in specific sense, it means the very first year of a *Yuga*. **The names, in order, of the 05 Samvatsarā of a Yuga are Samvatsara, Parivatsara, Idavatsara, Anuvatsara and Vatsara.** *Viṣṇu Purāṇa* states:

संवत्सरादयः पञ्च चतुर्मासिविकल्पिताः ।
निश्चयः सर्वकालस्य युगमित्यभिधीयते ॥ VP 2.8.71
संवत्सरस्तु प्रथमो द्वितीयः परिवत्सरः ।
इद्वत्सरस्तृतीयस्तु चतुर्थश्चानुवत्सरः ।
वत्सरः पञ्चमश्चात्र कालोऽयं युगसंज्ञितः ॥ VP 2.8.72
The Samvatsarā, five in number, are of (take into account) all 4 types of months (solar, lunar, Nakṣatra etc.), Decision about all time is to be made by knowing their union. Of these, Samvatsara is first, second is Parivatsara, Idavatsara is third and fourth is Anuvatsara, Vatsara is fifth and this time (of 05 Samvatsarā together) is known as the Yuga.

The *Yuga*, when put to actual use in the *Yuga* cycle, becomes flexible instead of being fixed at 62 lunar months (5*12+2). Even

the *Mahābhārata* states of a *Yuga* as being of 62 months (2 intercalary months every 5 years) generally³⁰. But the *Yuga* becomes of 61 months when the *Ādhika-Pauṣa* (Intercalary *Pauṣa*) month at the end of the *Yuga* needs to be dropped for a periodic synchronization of the *Yuga* cycle with the winter solstice point. This very flexibility makes the starting point of *Yuga* oscillate about winter solstice point and ensures that the *Yuga* cycles successfully cover huge time periods such as the Sun's age, without ever going out of sync.

P.V. Holay, an Indian researcher, in his commentary on the *Vedāṅga Jyotiṣa*, has completely distorted the meaning of its verses and has wrongly concluded that the *Yuga* equals a period of 19 years, implying that the *Yuga* was the same as a Metonic cycle invented by the Greeks in 5th century BCE. As the time period of *Yuga* is stated quite unambiguously as equaling 05 *Samvatsarā* in the *Vedāṅga Jyotiṣa* and the *Purāṇa*, where even the distinct names of these 05 *Samvatsarā* are provided, his arbitrary interpretation of the *Yuga* as of 19 years is quite unscholarly.

4.6 *Mahā-Yuga*

A *Mahā-Yuga* is also known as the *Catur-Yuga* since it can also be split up in 4 sub-cycles, of mutual ratios of 4:3:2:1, which are the *Kṛta-Yuga* or the *Satya-Yuga*, the *Tretā-Yuga*, the *Dvāpara-Yuga* and the *Kali-Yuga*. The *Purāṇa*, going by the correct interpretations³¹ of Vedic *Samskṛt*, tell us that the *Mahā-Yuga* is of 120 *Samvatsarā* and the *Kṛta-Yuga/Satya-Yuga*, the *Tretā-Yuga*, the *Dvāpara-Yuga* and the *Kali-Yuga* are of 48, 36, 24 and 12 *Samvatsarā* respectively:

³⁰ तेषां कालातिरेकेण ज्योतिषां च व्यतिक्रमात् ।

पञ्चमे पञ्चमे वर्षे द्वौ मासावृपजायतः ॥ MB 4.52.3

³¹ The durations of *Kṛta-Yuga*, *Tretā-Yuga*, *Dvāpara-Yuga* and *Kali-Yuga* are generally misunderstood to be 4800, 3600, 2400 and 1200 “divine” years. *Āryabhaṭṭa* took a “divine” year, that actually meant a Solstitial year, to be equal to 360 human years.

चत्वार्याहुः सहस्राणि वर्षाणां तत्कृतं युगम् ।
 त्रीणि वर्षसहस्राणि त्रेतायुगमिहोच्यते ॥
 तथा वर्षसाहस्रे द्वे द्वापरं परिमाणतः ।
 साहस्रमेकं वर्षाणां ततः कलियुगं स्मृतम् ॥

40* are said to be years of *Kṛta-Yuga / Satya-Yuga*,
 30* are years of *Tretā-Yuga*, it is said,
 And 20* (10x2) years is the *Dvāpara-Yuga duration*,
 10* years in the *Kali-Yuga* are remembered to be.

*Add to each of these an extra 10% at both ends to get their true durations:
Kṛta-Yuga: 48 years, *Tretā-Yuga*: 36 years,
Dvāpara-Yuga: 24 years, *Kali-Yuga*: 12 years.

It's also stated in the *Purāṇa* that while the *Mahā-Yuga* cycle is valid throughout the world, its four sub-cycles of *Kṛta-Yuga*, *Tretā-Yuga*, *Dvāpara-Yuga* and *Kali Yuga* have meaningful interpretation only for the region of *Bhāratavarṣa* (India)³²; India attained its independence in 1947, the 1st year of 52nd *Kṛta-Yuga & Mahā-Yuga*:

चत्वारि भारते वर्षे युगान्यत्र महामुने ।
 कृतं त्रेता द्रापरञ्च कलिश्वान्यत्र न छवित् ॥ VP 2.3.19

*Four are the Yugā here in India, O Great Sage,
 Kṛta, Tretā, Dvāpara and Kali; (they are) not elsewhere.*

The correct duration of a *Mahā-Yuga / Catur-Yuga* can also be mathematically derived merely by knowing that there were ~17.5 generations³³ from birth of *Rāma* to the time of *Mahābhārata* war, as given in the next table. This is about 507 years (17.5*29), considering the average generation time at 29 years. Now, *Rāma*'s birth is stated to be at the end of 24th *Tretā-Yuga* and the *Mahābhārata* War is stated to be at the end of 28th *Dvāpara-Yuga*, which gives us ~4.2 *Mahā-Yugā* as their mutual time difference,

³² India is said to be the only place in the world which is a *Karma Bhūmi*, the land of working out the *Karmā* with a final aim of attainment of liberation from the endless cycle of birth and death.

³³ As per genealogies provided in the *Matsya Purāṇa* (Chapters 21+)

without any consideration for the duration of a *Mahā-Yuga*. This implies that 4.2 *Mahā-Yugā* equal 507 years which gives us 120.71 years (507/4.2) as a rough estimate of the duration of *Mahā-Yuga*. The 17 generations preceding the war are listed in the table below, of which the first two columns can be ignored for now:

Gen	Year	(C) Solar Line (<i>Ayodhyā</i>)	(R) Lunar Line (<i>Madhu</i>)
99	-1331	... (<i>Daśaratha</i>)	<i>Madhu, Vrddhakṣatra</i> (w) <i>Vaidarbī</i>
100	-1302	<i>Rāma</i> (n) old-age son of <i>Daśaratha</i> , born 1331 BCE	<i>Purabasa, Marubasa</i> (b) <i>Lavanya</i> , from <i>Kumbhīnasī</i> , a Rākṣasa girl
101	-1273	<i>Kuśa</i>	<i>Purudvāna, Puruhotra</i> (w) <i>Vaidarbī Bhadrāvatī</i>
102	-1244	<i>Atithi</i>	<i>Jantu, Āyu, Amśu</i> (w) <i>Aikṣavākī</i>
103	-1215	<i>Niśadha</i>	<i>Sāttvata</i> (w) <i>Kausalya</i> (n) reclaimed Mathura
104	-1186	<i>Nala</i>	<i>Devavṛddha</i> (w) <i>Parṇāśā</i>
105	-1157	<i>Nabha</i>	<i>Babhru</i> (w): (d) of <i>Kaṅka</i>
106	-1128	<i>Puṇḍarīka</i>	<i>Bhajamāna</i> (b) Vṛṣṇi I , <i>Kukura, Kambalabarhiṣa, Andhaka, Mahābhoja, Bhajīn, Divyam, Śāsi</i>
107	-1099	<i>Kṣemadhanvā</i>	<i>Vidūratha</i> (cb) Vṛṣṇi II , son of <i>Kukura</i>
108	-1070	<i>Devānīka</i>	<i>Śūra</i>
109	-1041	<i>Ahinagu / Ahinaka / Ahina</i>	<i>Śoṇāśva</i>
110	-1012	<i>Prasūruta</i>	<i>Śamī / Śani</i>
111	-983	<i>Susamdhī</i>	Vṛṣṇi III (w) <i>Gāndhārī, Mādrī</i>
112	-954	<i>Amarṣa</i>	<i>Devamīḍhuṣa</i> (b) <i>Anamitra</i>
113	-925	<i>Sahasvāna</i>	<i>Śurasena</i> (w) <i>Bhojyā</i>
114	-896	<i>Viśvabhava</i>	<i>Vasudeva</i> (b) <i>Devabhāga</i>
115	-867	<i>Brhadbala</i> **	<i>Kṛṣṇa</i> (b) <i>Balarāma</i>

** Both *Brhadbala* & *Śrutāyu* were killed in the *Mahābhārata* war.

Table 1.10

From Birth of *Rāma* to *Mahābhārata* time #Gen. 99-115

If the same calculations be made from the preknown years of *Rāma*'s birth in 1331 BCE and of *Mahābhārata* War in 827 BCE, as established in chapters ahead, we arrive at the same incontrovertible conclusion, as shown in the figure below:

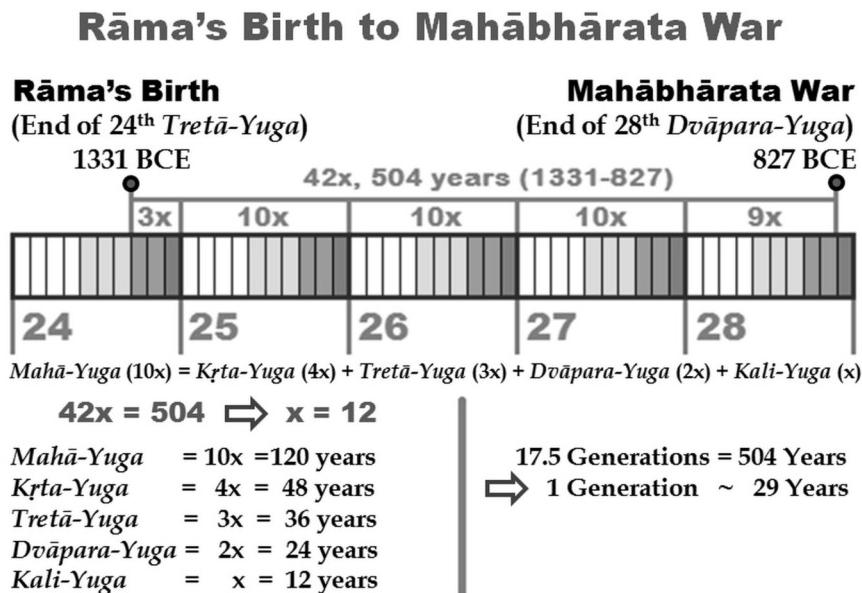


Figure 1.8
Time between *Rāma*'s Birth and *Mahābhārata* War

So, the 120 *Samvatsara* duration of *Mahā-Yuga* also stands ratified from the point of view of genealogy. There needn't be any more doubts about the duration of *Mahā-Yuga* as it's only due to the misunderstanding of the Vedic *Samskr̥t* numbers that it was first thought to be of 12,000 years after the *Mahābhārata* period. From after the start of *Siddhānta* period, the *Mahā-Yuga* was taken to be of 4,320,000 years, as also theorized by *Āryabhaṭṭa* in his work *Āryabhaṭṭīyam* (499 CE). The 120 *Samvatsara* period of *Mahā-Yuga* is a multiple of 5 (the period of *Yuga*) as also of the synodic periods of the planet Jupiter (~12 *Samvatsarā*) and the planet Saturn (~30 *Samvatsarā*) that are said to be the *Samvatsara* stabilizers (संवत्सर स्थायिनौ) by the sage *Vedavyāsa* in *Mahābhārata*:

संवत्सर स्थायिनौ च ग्रहौ प्रज्वलितावुभौ ।
विशाखयोः समीपस्थौ बृहस्पति शनैश्चरौ ॥ MB 6.3.27

The *Samvatsara* stabilizers, the 2 planets, are bright, they both, (by aspect, are) in *Viśākhā*'s neighborhood, Jupiter and Saturn.

4.7 Start of *Mahā-Yuga* Cycle (*Manvantara*)

Now that the duration of a *Mahā-Yuga* cycle is known, its timeline can be readily established only if the date of any one of its fixed points becomes known for certain. This fixed point is the *Mahābhārata* war date of 827 BCE, the last year of 28th *Dvāpara-Yuga*, which gives us the beginning point of the *Mahā-Yuga* cycle as 4174 BCE, 3347 *Samvatsarā* (27*120+48+36+23) before 827 BCE. The exact day is Jan 21, 4174 BCE, the starting winter solstice day of year 4174 BCE. Now, by the very conceptualization of *Vedāṅga Jyotiṣa*, the first counting of time should have begun on a winter solstice day that also fell next of a new moon day. On checking, we find that Jan 21, 4174 BCE (21.01.-4173 12:02:40 IST) was not only the winter solstice day but also the day next to a New Moon Day (Jan 20, 4174 BCE; NMP: 20.01.-4173 12:12:00 IST, Midday: 20.01.-4173 12:35:07 IST). So, the *Mahā-Yuga* cycle and the year of *Mahābhārata* war stand mutually validated.

From this beginning point of 4174 BCE, we are also able to get the birth-year of king *Rāma* of Solar line in a snap as his birth is stated to have taken place in the very last year of 24th *Tretā-Yuga*. As this time point lay 2843 years (23x120+48+36-1) later of 4174 BCE, the birth-year of *Rāma* was 1331 BCE. As explained in detail in the *Rāmāyaṇa* chapter, all the *Rāmāyaṇa* dates and planetary configurations are wholly consistent with *Rāma*'s birth-year date of 1331 BCE. This further confirms the *Mahā-Yuga* cycle and even validates its usage, as understood by us, to be completely correct. So, the base date of Jan 21, 4174 BCE, that is the starting point of the *Mahā-Yuga* cycle of present age, thus becomes a sheet anchor date for the entire Indian history.

Present Manvantara (No. 07)

Winter Solstice in Pisces 0° - Scorpio 0°
 Vernal Equinox in Gemini 0° - Aquarius 0°
 (4174 BCE - 4436 AD)

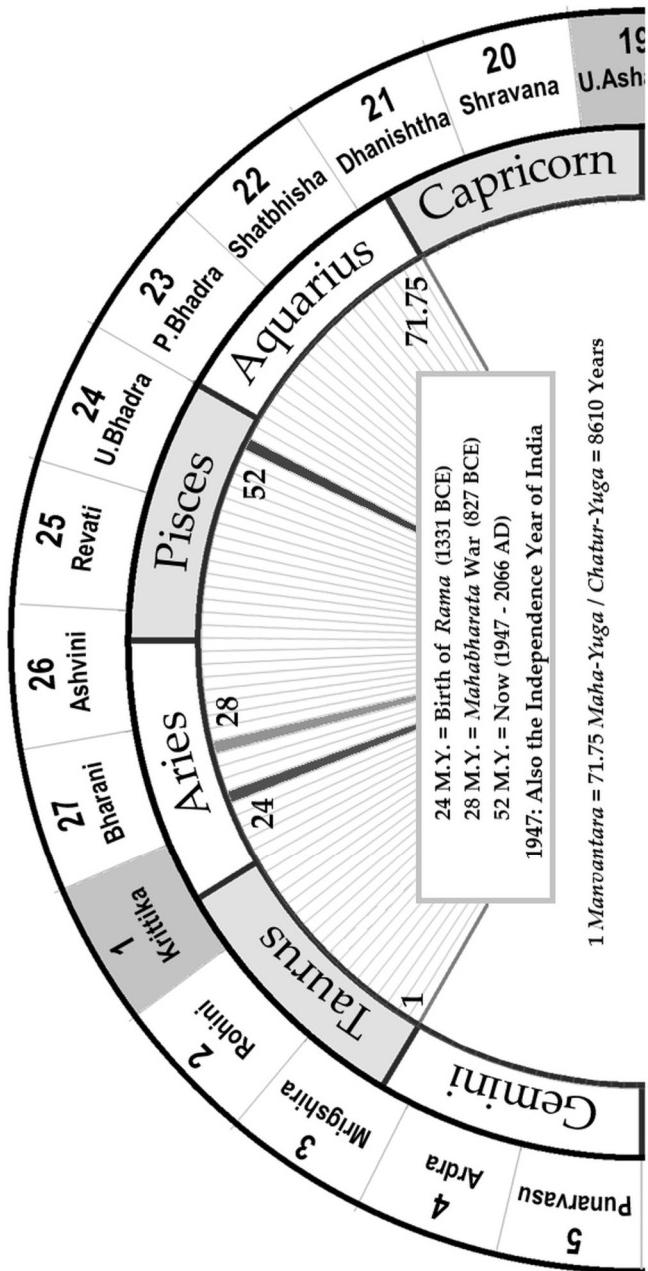


Figure 1.9
 The Present Manvantara

Earth's Precession Cycle

(25830 Years = 1 *Prahara of Brahma* = 1/10th of *Brahma's Day*)

(8610 Years = 1 *Manvantara* = 1 *Muhurata of Brahma* = 1/3rd Cycle)

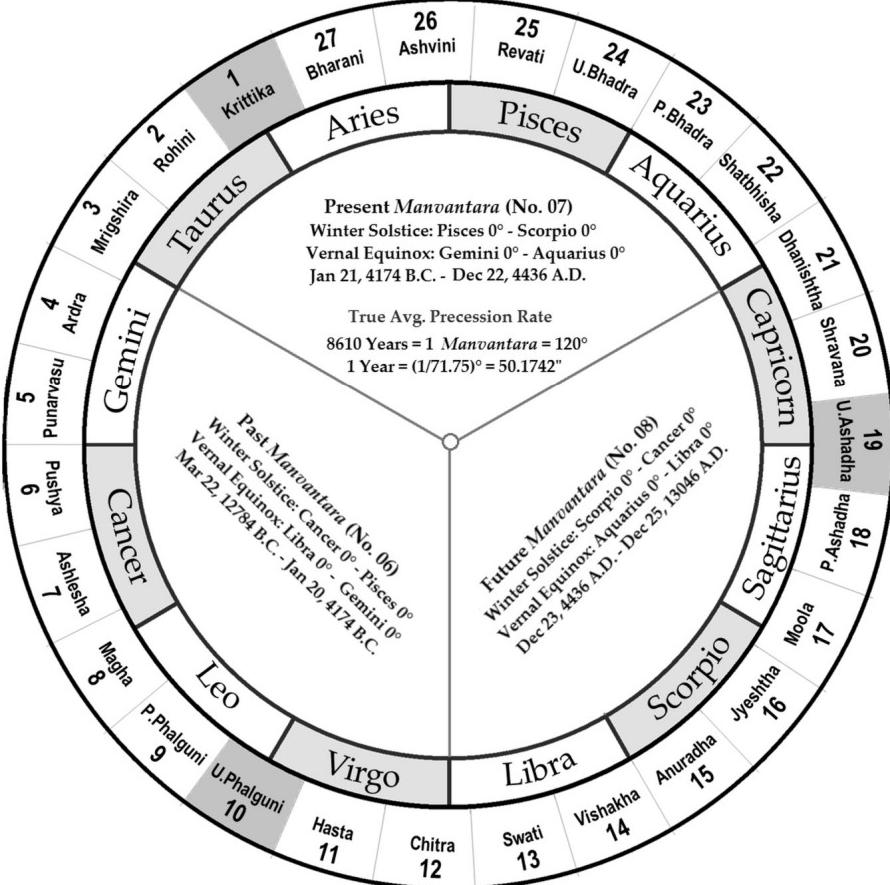


Figure 1.10
Earth's Precession Cycle and the Present *Manvantara*

4.8 The *Manvantara*

The cycle of *Manvantara* comes immediately next of that of the *Mahā-Yuga* and is said to be of a duration that is greater than 71 *Mahā-Yugā* but lesser than 72 *Mahā-Yugā*. Looking for a *Mahā-Yuga* number between 71 and 72 that would be a suitable fit, we

discover it to be 71.75. The only multiples of 30 between 8520 (71x120) and 8640 (72x120) are 8550 / 8580 / 8610. Since 8610 equals 1/3rd of the precession cycle³⁴ (=25830/3), it can be inferred that the *Manvantara* period is 8610 *Samvatsarā* (71.75 *Mahā-Yugā*). Also, the offset similarity³⁵ between the successive *Manvantarā* is established only when the age of *Manvantara* is taken to be 8,610 *Samvatsarā*. Both these facts sufficiently establish the *Manvantara* period as of 71.75 *Mahā-Yugā* that equal 8610 *Samvatsarā*.

Now, it is stated that 6 *Manvantarā* are already past, that the 7th *Manvantara* is running and that 7 more *Manvantarā* are yet to occur within the present *Brahmā-Day*. This conveys to us that a *Manvantara* is nothing but a *Muhūrta* (1/30th part) of *Brahmā-Day*. So, the *Brahmā-Day* utilizes the same *Muhūrta* scheme that applies to an Earth-Day, only difference is that the *Muhūrta* of a *Brahmā-Day* is of 8610 *Samvatsarā*. As the *Manvantara* is a *Muhūrta* of *Brahmā-Day* and 1/3rd of the Earth's Precession Cycle, the Precession Cycle is nothing but a *Prahara* of *Brahmā-Day*, a 1/10th part of *Brahmā-Day*. This can be summarized thus:

1 Manvantara = 71.75 Mahā-Yugā = 1,722 Yugā
= 8,610 Samvatsarā
= 1/3rd Precession Cycle
= 1/3rd Prahara of Brahmā
= 1 Muhūrta of Brahmā

Table 1.11
The *Manvantara*

Here, it should be kept in mind that the word *Manvantara* has two meanings: the time-gap and the distance-gap, between 2 *Manu*. Here, the time-gap is implied whereas where the 07 *Manvantarā* of

³⁴ Earth's precession cycle computed previously to be 25,830 years.

³⁵ It's explained ahead that the time cycle of 1722 *Yugā* (8610 years), which is nothing but the *Manvantara*, repeats itself just the same as previous cycle, only with an additional offset of -0.36 days from it.

07 *Manu* are mentioned in the *Purāṇā*, their distance-gap (their lands) is meant. So, the 07 time *Manvantarā* are different from the 07 distance *Manvantarā* of 07 *Manu* which were actually the 07 lands ruled by them.

It is stated that there is great destruction at the end of every *Manvantara* and even within the *Manvantara* there are many destructions. As will become known in the next chapter, the oldest historically known human is *Svayambhuva Manu* (a.k.a. *Brahmā*: the self-born, ~3400 BCE), of Vedic Indian civilization, who existed in the beginning. The Harrapans appeared about a 100 years later of him in ~3300 BCE, the very first Egyptians came another 200 years later in ~3100 BCE and the Mesopotamians came somewhat later in ~2580 BCE. The Vedic calendar that began in 4174 BCE was known to *Svayambhuva Manu* from his forefathers about whom we know nothing. About 580 years later, in the 21st generation of *Svayambhuva Manu*, was born the *Vaivasvat Manu* who was the son of *Vivasvān*, the Sun god. During his early youth, about 2820 BCE, there was a great deluge that wiped out the most humans³⁶. Now, *Vaivasvat Manu* is said to have been saved by the supreme god *Viṣṇu*, who was his uncle and the most exalted son

³⁶ The Puranic view that this deluge destroyed everything doesn't appear correct as the Egyptians survived this deluge. This may have been because either this deluge didn't occur in their area or, if it did, it was negated by the deserts of Egypt that absorbed all its waters. Similarly, there were many other migrations out of India in the 580 years that lay between *Svayambhuva Manu* and the *Vaivasvat Manu*. These people must have settled variously, some in highlands, some on the riverbanks, some near the coastal areas, some in the mountains. It's highly unlikely that a 'global' deluge could kill even those people who lived at high altitudes or in deep deserts. It is scientifically known today that even if all the ice on Earth (Polar Ice-caps and Mountain Glaciers) were to melt, the sea level would rise only by about 216 feet. While this would be catastrophic for the most low-lying cities of the world, most people in the high altitudes would easily survive it. So, it would be wrong to think that all living creatures perished in this deluge.

of *Aditi* from amongst the 12 *Ādityā*. It is said that *Viṣṇu* assumed the form of a huge fish and towed the ship of *Vaivasvat Manu* through the deluge waters to a safe Himalayan plateau. *Vaivasvat Manu* was thus saved, along with his wife *Śatarūpā*, the *Saptarishi* (the seven holy sages) and some animal pairs. He later climbed down from the mountains and settled in the city of *Ayodhyā*, on the south bank of *Sarayū* River, and became the progenitor of a race of men that came to be known as the *Ārya* or the *Mānavā*. As the other tribes of the *Devā*, the *Nāgā*, the *Asurā*, the *Yakṣā*, the *Rākṣasā*, the *Gandharvā* and the *Kinnarā* also existed in this time, it's obvious that they too had survived the deluge.

4.9 *Kalpa*

The duration of a daytime or nighttime of *Brahmā* is known as the *Kalpa* and it is constituted of 15 *Manvantarā* (14 Full *Manvantarā* and two $\frac{1}{2}$ *Manvantarā* of dawn and dusk). The *Kalpa* is also said to be constituted of (nearly) a 1000 *Mahā-Yugā*³⁷ but this figure is only a generalization³⁸ of a time span of 120,000 years for easy calculation. Since we quite accurately know the *Kalpa* duration to be 5 precession cycles ($5 \times 25,830$) that equal 129,150 *Samvatsarā*, we can calculate the actual number of *Mahā-Yugā* in a *Kalpa* to be 1076.25 ($(1,000/120,000)*129,150$) rather than 1000:

$\begin{aligned} 1 \text{ Kalpa} &= 15 \text{ Manvantara (Muhūrta of Brahmā)} \\ &= 5 \text{ Prahara of Brahmā} = 5 \text{ Precession Cycles} \\ &= 5 \times 25,830 \text{ years} = 129,150 \text{ years} \\ &= 25,830 \text{ Yugā} = 1076.25 \text{ Mahā-Yuga} \end{aligned}$
--

Table 1.12
The *Kalpa*

³⁷ कृतं त्रेता द्वाररश्च कलिश्वैव चतुर्युगम् ।
प्रोच्यते तत्सहस्रं च ब्रह्मणो दिवसं मुने ॥ VP 1.3.15

³⁸ Just like 365.25 days of a year are taken to be 360; ancient Indians are known to use round figures for easier calculations.

A *Brahmā*-Day is of two *Kalpa*: a daytime *Kalpa* and a nighttime *Kalpa* and its duration is 258,300 years. At the end of each daytime *Kalpa*, destruction takes place and the creation begins again at the expiry of the nighttime *Kalpa*. The present *Kalpa* is a daytime *Kalpa* and known as the *Varāha Kalpa*. Counting back to sunrise time of *Brahmā*'s present day, which lies 6.5 *Manvantarā* before 4174 BCE, we get 60,139 BCE as the year when the present day of *Brahmā*, the *Varāha Kalpa*, started.

Scheme of a *Brahmā*-Day *Brahmā = SUN = Creator*

$$\begin{aligned}\text{Age of Brahma (SUN)} &= (\text{Day of Brahma} \times 365.243) \times 100 \text{ Years} \\ &= 258,300 \times 365.243 \times 100 \text{ Years} \\ &= 9.43 \text{ Billion Years}\end{aligned}$$

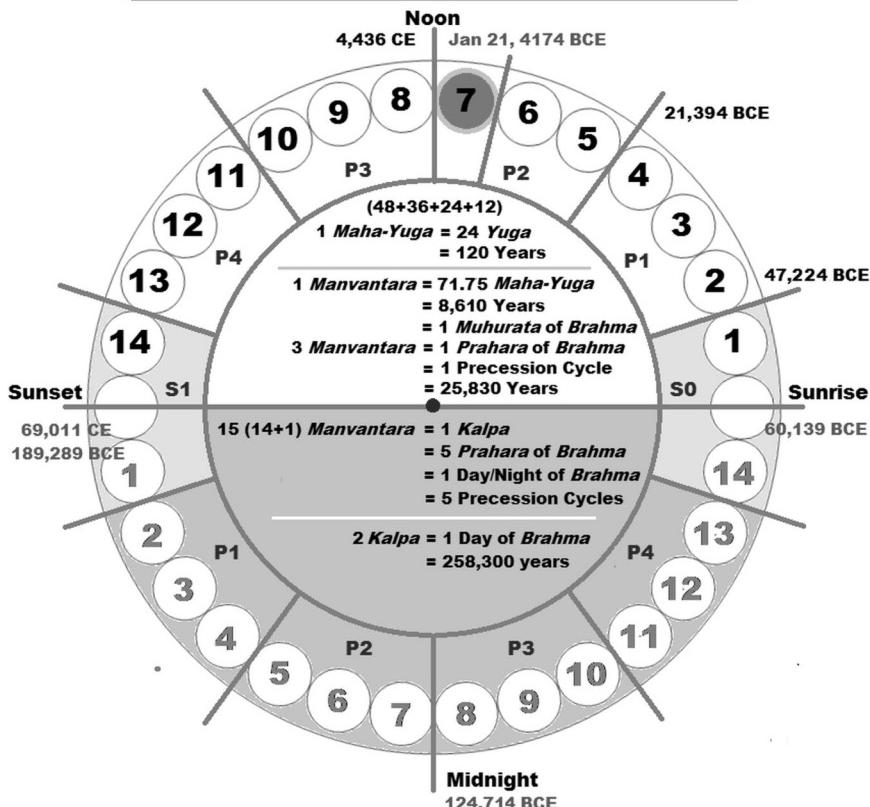


Figure 1.11
Scheme of a Full Day of *Brahmā*

According to the Vedic texts, this is the time point when the creation of modern humans began. The modern science also tells us nearly the same thing that the modern humans came into being about 60,000 BCE. The whole scheme of a *Brahmā*-Day, essentially the same as the *Muhūrta* scheme with only a different time scale, is illustrated in the diagram given above.

4.10 *Parārdha & Parā*

The *Parā* is the biggest time cycle of all and is equal to the time period of *Brahmā*'s complete life of 100 years by the measure of his own day. Half-life of *Brahmā* (50 years) is known as the *Parārdha*. It's stated that one of the two *Parārdha* is already over and that now is the first day of the 2nd *Parārdha* (51st year of *Brahmā*):

एवं तु ब्रह्मणो वर्षमेवं वर्षशतं च यत् ।

शतं हि तस्य वर्षाणां परमायुर्महात्मनः ॥ VP 1.3.26

एकमस्य व्यतीतं तु परार्द्धं ब्रह्मणोऽनघं ।

तस्यान्तेऽभून्महाकल्पः पाद्मा इत्यभिविश्रुतः ॥ VP 1.3.27

द्वितीयस्य परार्द्धस्य वर्तमानस्य वै द्विज ।

वाराह इति कल्पोऽयं प्रथमः परिकीर्तिः ॥ VP 1.3.28

*Such, of the Brahmā, is the year, 100 years are likewise,
100 years only, is his maximum life, of that great being.*

*One is already past, the Parārdha of the Brahmā, O Sinless One,
At its end, occurred the Mahā-Kalpa, known as Padma, so is known.*

*Of Second Parārdha, is the present time, O Learned One,
(Of that) Varāha Kalpa is this first one, it's said.*

Most *Purāṇā*, including the *Mārkaṇḍeya*³⁹ *Purāṇa* state the same. The *Viṣṇu Purāṇa* also narrates a dialogue between *Parāśara* and

³⁹ तत्प्रमाणैव सा रात्रिस्तदन्ते सृज्यते पुनः ।

एवन्तु ब्रह्मणो वर्षमेकं वर्षशतन्तु तत् ॥ MP 46.41

शतं हि तस्य वर्षाणां परमित्यभिधीयते ।

पञ्चाशद्विस्तथा वर्षैः परार्धमिति कीर्त्यते ॥ MP 46.42

एवमस्य परार्धन्तु व्यतीतं द्विजसत्तम ।

यस्यान्तेऽभून्महाकल्पः पाद्मा इत्यभिविश्रुतः ॥ MP 46.43

his disciple *Maitreya*, a little after the *Mahābhārata* war, which recounts that the (then) present day of *Brahmā* (*Kalpa*) was the 1st day of second *Parārdha* (51st year of *Brahmā*'s life) and, within this present day known as the *Varāha Kalpa*, 6 *Manvantarā* were already elapsed and that the 7th *Manvantara* was current. Even in this 7th *Manvantara*, 27 *Mahā-Yuga* / *Catur-Yuga* have completely passed and the *Satya*, *Tretā* and *Dvāpara* of the 28th *Mahā-Yuga* / *Catur-Yuga* had also passed⁴⁰.

The duration of a *Brahmā*-Day is now known to us as 258,300 *Sanvatsarā*/years. Assuming the *Brahmā*-Year to be of 365.243 *Brahmā*-Days, its time span can be calculated to be 94,342,267 years (94.342 Million Years). From this, we also get the duration of *Parārdha* (half-life of *Brahmā*) as 4.717 Billion Years and the duration of *Parā* (the full-life of *Brahmā*) as 9.434 Billion Years.

Time-Span	<i>Brahmā</i> Time	Earth Time	Solstitial Years
<i>Brahmā</i> -Daytime	½ day	1 <i>Kalpa</i> , 5 Precession Cycles	129,150 Years
<i>Brahmā</i> -Day	1 day	2 <i>Kalpā</i> , 10 Precession Cycles	258,300 Years
<i>Brahmā</i> -Year	365.243 days	730.486 <i>Kalpā</i> , 2/5 th Galactic Year	94,342,267 Years 94.342 Million Years (258,300 x 365.243)
<i>Parārdha</i> : <i>Brahmā</i> -Half-Life	50 years	20 Galactic Years	4.717 Billion Years (<i>Brahmā</i> -Year x 50)
<i>Parā</i> : <i>Brahmā</i> -Full-Life	100 years	40 Galactic Years	9.434 Billion Years (<i>Brahmā</i> -Year x 100)

Table 1.13
The *Parārdha* and *Parā*

द्वितीयस्य परार्धस्य वर्तमानस्य वै द्विज ।

वाराह इति कल्पोऽयं प्रथमः परिक्लिप्तः ॥ MP 46.44

⁴⁰ This actually pertains to year 826 BCE, the first year of 28th *Kali-Yuga* that immediately followed the *Mahābhārata* war at the end of 827 BCE.

It can be observed that the full-life of *Brahmā*, at 9.434 Billion Years, is a figure rather well known as the total lifetime of our Sun. It can also be observed that the half-life of *Brahmā*, at 4.717 Billion Years, which is said to be already past, is also the present age of our Sun. The truth that emerges from this observation is that the 100 years of *Brahmā* are, in reality, a mere metaphor for the lifetime of Sun and so are the 50 spent years of *Brahmā* for the present life of Sun. So, the Vedic sages not only knew the total lifetime of Sun but also accurately knew its current age. Such a high accuracy, in measurement of a cosmic phenomenon, is in itself the unassailable proof of this Vedic science of time.

Now, a Galactic Year is the time period of Sun's revolution around the center of Milky Way Galaxy and is about 236 (235.855) Million years. As the lifetime of Sun/*Brahmā* is practically the same as 40 Galactic Years, 1 *Brahmā*-Year is equal to $2/5^{\text{th}}$ Galactic Year or 144° angle on Sun's orbit around the Galactic center.

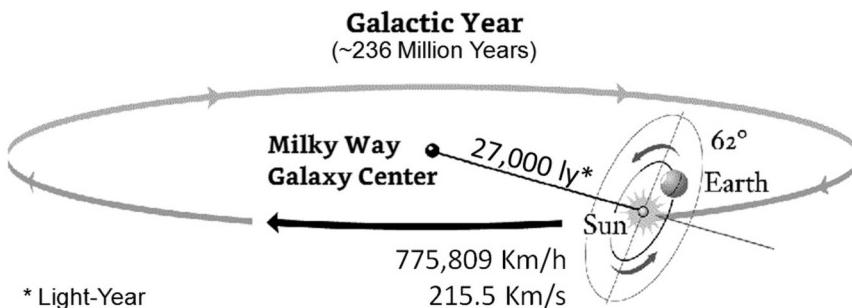


Figure 1.12
Galactic Year

There is a story in the *Purāṇā* that *Brahmā* was born of *Viṣṇu*'s navel which appears to be a metaphorical representation of the higher cosmic truth of the Sun (*Brahmā*) being born from the center (Navel) of our galaxy (*Viṣṇu*). So, for all time calculations, assume the Sun to be *Brahmā* and the center of Milky Way Galaxy to be the navel of *Viṣṇu*. The dark matter in our Milky Way galaxy

can be equated with *Śiva*, the third god of trinity, thought to be responsible for the eventual destruction of universe.

In the *Yoga Vāsiṣṭha*, the greatest extant literature on the metaphysical reality of the world, the sage *Vasiṣṭha* tells prince *Rāma* that, only from a relative standpoint of the consciousness, the world is real and that there are innumerable universes in this entire manifest creation, each with its own trinity of gods. These millions of universes are nothing but the innumerable galaxies floating in the time-space continuum of the mind-space (the *Cittākāśa*) of the Supreme Being wherein each universe is said to have an Earth-like planet. Even complete universes are said to exist in parallel within other dimensions (Multiverse), that too within a space as little as a speck of dust. The *Yoga Vāsiṣṭha* further states that there is only one single Supreme Being known as the *Brahma* (not the god *Brahmā*) that, under the influence of its power (*Māya*), imagines itself to be many and that's how the universes come into existence but only in its imagination (mind-space, *Cittākāśa*). In actuality, there is neither the space, nor the time but only the one ultimate Supreme Being because for something to exist, it has to come from something. In the *Yoga Vāsiṣṭha*, there is a detailed account of Queen *Līlā* who travels to two other universes in her subtle body, along with the goddess *Sarasvatī*, to meet king *Padma*, her freshly deceased husband. This universe where king *Padma* was reborn was present in a thumb-sized space in a corner of *Lila*'s room. Also, this king *Padma* was already over 60 years old in the timeframe of his new universe while in the timeframe of Queen *Lila*, only a day or two had elapsed since his death. When *Līlā* is confused at this anomaly, the goddess *Sarasvatī* tells her that both time and space exist only from a relative standpoint and are not absolute. In the ultimate purest state, they are non-existent.

4.11 Three Great Destructions

Apart from the floods that occurs routinely at the end of every *Manvantara*, and that occur within the *Manvantara*, there are said

to be three great destructions (*Pralaya*): *Naimittika*, *Ātyantika* and *Prākṛt*. The three great destructions are the ones that occur at the end of each daytime *Kalpa* (every 258,300 years), each *Parārdha* (every 20 galactic years) and each *Parā* (every 40 galactic years). Both the *Brahma Purāṇa* (232.1-5) and the *Viṣṇu Purāṇa* (6.3.1-5) state the following:

सर्वेषामेव भूतानां त्रिविधः प्रतिसञ्चरः ।

नैमित्तिकः प्राकृतिकस्तथैवाऽत्यन्तिको मतः ॥ BP 232.1 / VP 6.3.1

ब्राह्मो नैमित्तिकस्तेषां कल्पान्ते सञ्चरः ।

आत्यन्तिको वै मोक्षश्च प्राकृतो द्विपरार्थिकः ॥ BP 232.2 / VP 6.3.2

*All elements, likewise, in three ways, suffer great destruction,
Naimittika, Prākṛtika and Ātyantika are these (3 destructions) said to be.
Of Brahmā's day, it is Naimittika, the destruction at the end of Kalpa,
Ātyantika is liberating one, Prākṛt occurs at the end of every two Parā.*

Naimittika Pralaya: The destruction that occurs at end of each daytime *Kalpa* is known as the *Naimittika Pralaya*, wherein, it's said that the most beings on Earth are destroyed except the trinity (*Brahmā*, *Viṣṇu* and *Śiva*). *Brahmā* goes to sleep for the duration of a nighttime *Kalpa*; the creation that subsequently follows at the end of each nighttime *Kalpa* is known as *Pratisarga* (प्रतिसर्गः). All living beings are said to lose their physical and subtle bodies, only their causal bodies (the mind, the seed) remain intact. After the nighttime *Kalpa* of *Brahmā* is over, the beings are reborn as per the desires and tendencies latent in their mind, just as a tree springs forth from a seed.

Ātyantika Pralaya: The destruction that takes place at the end of each *Parārdha*, which is of 20 galactic years, is known as the *Ātyantika Pralaya* (Middle Destruction) wherein the whole earth and all beings on entire Earth, except the trinity (*Brahmā*, *Viṣṇu* and *Śiva*), are completely destroyed. The creation that starts completely afresh at the end of each *Parārdha* is known as the *Sarga* (सर्गः).

Prākṛt Pralaya: The destruction that takes place at the end of each *Parā*, which is of 40 galactic years, is known as the *Prākṛt Pralaya* (Natural Destruction) and is the full and final destruction of that creation (galaxy). Innumerable such creations are said to exist in the *Cittākāśa*, the Mind Space of the Supreme Being, along with their own trinities, as expounded in the *Yoga Vāsiṣṭha*.

5. Nakṣatra Zodiac & Vedic Ayanāṁśa

It's extremely important to define the correct *Nakṣatra* Zodiac precisely, with exact *Nakṣatra* boundaries, as also the correct *Ayanāṁśa*, before undertaking to work with any planetary positions. The *Ayanāṁśa* is nothing but the angular difference between the fixed Zodiac and the movable Zodiac (defined by Vernal Equinox), in any era. It is common sense that only one *Ayanāṁśa* can be correct since only one position of fixed Zodiac, as envisaged at some starting point, can be the correct one.

5.1 Nakṣatra Zodiac & Sūrya Siddhānta

The present understanding that the start of *Aśvinī Nakṣatra* equals the start of Aries is factually wrong. Actually, it's the start of second quarter of *Aśvinī Nakṣatra* that equals the start of Aries. The *Siddhānta* texts such as *Sūrya Siddhānta* had *Aśvinī* 0° as their reference point and not Aries 0° , as explained ahead. About 600 CE, some Indian⁴¹ and Muslim astronomers mistook the start of *Aśvinī* to be at Aries 0° , a misconception that perpetuated in India with the coming of Mughals and which has resulted in the original *Nakṣatra* Zodiac (*Aśvinī* $3^\circ 20'$ equals Aries 0°) being forwarded by a quarter *Nakṣatra*. The confirmation of this is in the accounts of Al-Biruni who thought that *Maghā* 0° equalled Leo 0° , implying that *Aśvinī* 0° equalled Aries 0° . Clearly, this definition of *Nakṣatra* Zodiac was that of his school, as also of *Varāhamihira*:

⁴¹ *Varāhamihira* has also wrongly identified the *Nakṣatrā* (BS 102.1-7)

*"Let us now first suppose that Garga is right, that he has not stated the precise place in Maghā which the Seven Rishis occupy, and let us suppose this place was 0° of Maghā, which would correspond to 0° of Leo for our time."*⁴²

"The author of the canon Karaṇasāra gives the following rule for the computation of the motion of the Great Bear, and of the place which, at any given time, it occupies:-

Subtract 821 from the Śaka-kāla. The remainder is the basis, i.e. the number of years above 4000 which have elapsed since the beginning of the Kaliyuga.

Multiply the basis by 47, and add 68,000 to the product. Divide the sum by 10,000. The quotient represents the zodiacal signs and fractions of them, i.e. the position of the Great Bear which was sought.

:
:

If we, by way of an example, make such a computation for the present year (1030 AD), we get 9°17' in the lunar station Anurādhā as the position of the Great Bear."

Let's now verify it ourselves. The year was actually 1031 CE/AD and not 1030 AD. Subtracting 78 from 1031 gives us 953 as the Śaka Era year of Al-Biruni's time. Now, as per Vitteśvara, the author of *Karaṇasāra*, we get 132 (953-821) as the basis for this year. This means that the *Kali-Yuga* of Vitteśvara, a follower of Āryabhaṭṭa, had completed 4000 years in 899 CE, 132 years before 1031 CE. This rightly gives us epoch of his *Kali-Yuga* at 3102 BCE ($899-4000=-3101$). Multiplying 132 by 47, adding 68,000 and dividing by 10,000 gives us 7.4204, a result that equals 7 full Zodiac signs from Aries and a 0.4204 part of Scorpio. The Scorpio part equals $12^{\circ}36'43''$, a position that is taken as $9^{\circ}16'43''$ of *Anurādhā Nakṣatra* by Al-Biruni, consistent with his conception that *Maghā* 0° equals *Leo* 0°. Now, no copies of *Karaṇasāra* of Vitteśvara exist but if it contained a similar method to determine the position of Great Bear (*Saptarṣi*, *Seven Rishis*) with regards to

⁴² Alberuni's India, Vol. 1 (1910, Kegan Paul), Chap. XLV, pp.391-393

Nakṣatrā as well, we could have easily known the exact equivalence of *Nakṣatra* Zodiac with the 12-Sign Zodiac. But, in the same chapter, Al-Biruni has made another observation:

"I have read in the Almanacs, for the year 951 of the Śaka-kāla, which came from Kashmir, the statement that the Seven Rishis stand since seventy-seven (77) years in the lunar station Anurādhā."

It's this observation, combined with the *Karaṇasāra* method, which makes known the Indian conception of the equivalence of *Nakṣatra* Zodiac and the 12-Sign Zodiac. Let's see how! It's known that the *Saptarṣi* were taken to stay in a *Nakṣatra* for 100 years. So, if *Saptarṣi* were 77 years into *Anurādhā* in 951 of Śaka era, they must have been at its start 77 years before, in 874 of Śaka era. Now, by the *Karaṇasāra* method, the *Saptarṣi* position in the 12-Sign Zodiac in this year is 7.04 [($(874-821)*47+68,000$)/10,000] which indicates that the *Saptarṣi* were just at the start of Scorpio, after having crossed 7 full signs. But this is the position of *Anurādhā* 0°, as already deduced. So, it becomes established that, even up to ~1000 CE, in the Indian areas (e.g. Kashmir) removed from influence of later Ujjain astrologers such as *Varāhamihira*, *Anurādhā* 0° equalled Scorpio 0°, which implies that *Aśvinī* 3°20' equals Aries 0°.

This also stands proven by the evidence of *Mahā-Yuga* cycles. When we find out the position⁴³ of winter solstice in 4174 BCE (21.01.-4173 12:02:40 IST), the base date of our present *Manvantara* (No. 07), with the common *True Citrapakṣa Ayanāṁśa*, it comes out just about the start of Q4 (quarter 4) of *Pūrvā-Bhādrā Nakṣatra*, a point seemingly coincident with Pis 0°. But, as it's the winter solstice of the base date that defines the *Nakṣatra* boundaries and not the other way around, a *Nakṣatra* should begin at this winter solstice position. So, quite clearly, the *Nakṣatra* at this position wasn't the start of Q4 of *Pūrvā-Bhādrā* but the start of Q1 of *Uttarā-Bhādrā Nakṣatra*.

⁴³ By the position of a Winter Solstice is meant the longitude of the Sun at the exact moment of Winter Solstice, it's the same for Vernal Equinox.

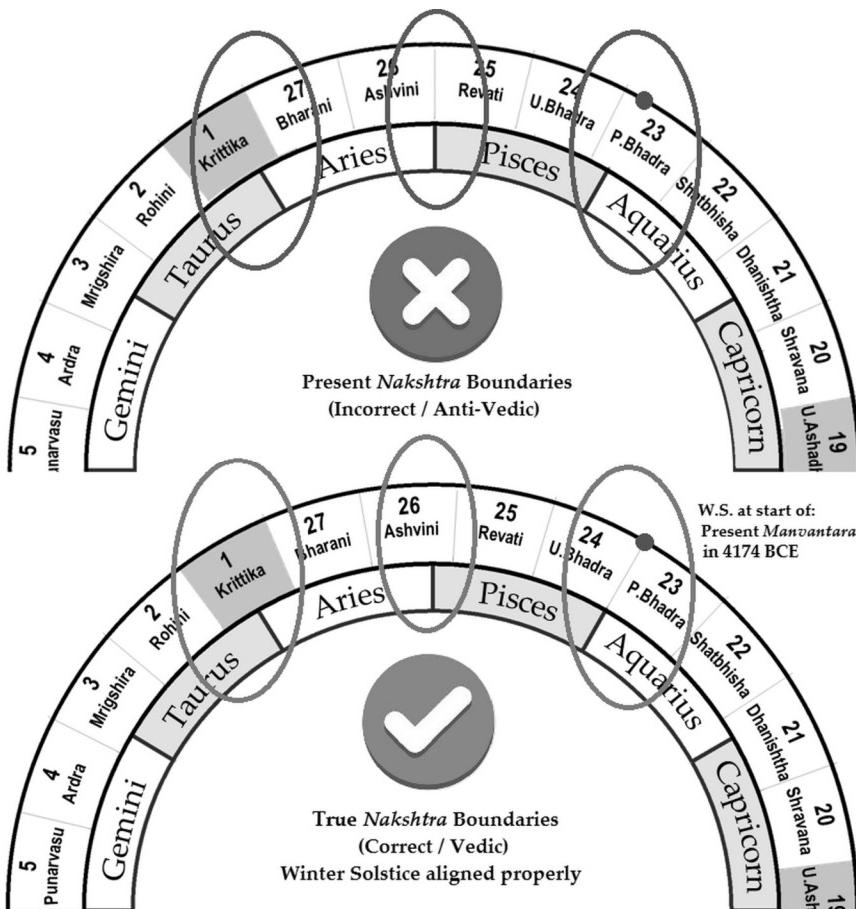


Figure 1.13
Boundaries of the Nakṣatra Zodiac

So, clearly, the equivalence of original *Nakṣatra* Zodiac with the 12-Sign Zodiac is defined by the “*Anurādhā* 0° equals *Scorpio* 0°” rule and not by the “*Maghā* 0° equals *Leo* 0°” rule of Al-Biruni. *Anurādhā* 0° lies exactly opposite the midpoint of *Kṛttikā* *Nakṣatra* that is the starting point of *Nakṣatra* Zodiac, as also that of all ancient Zodiacs, as we will read in the sections ahead. Thus, the present *Nakṣatra* Zodiac needs to be shifted back by a quarter *Nakṣatra* (3°20') so that *Anurādhā* 0° equals *Scorpio* 0° and the starting winter solstice of 4174 BCE is right at the start of *Uttarā-Bhādrā* Q1, a point that is *Pisces* 0° in the fixed 12-Sign Zodiac.

The western scholars such as John Bentley and Ebenezer Burgess who examined *Sūrya Siddhānta* and published papers and books on it were unable to understand this and defined the *Yogatārā* (chief Nakṣatra stars) rather haphazardly⁴⁴. As most of their defined stars don't match the *Yogatārā* latitudes, no concordance on the *Yogatārā* stars of the *Sūrya Siddhānta* yet exists. Reproduced below is the relevant table from John Bentley's book⁴⁵:

Table of the Lunar Asterisms, according to the Surya Siddhānta.

Names.	Latitudes.*	Longitudes from Aswinī.*		Longitude in the Mansion.	Stars supposed to be intended.
1 <i>Asvinī</i> ,	..	10°	N.	8° 0'	γ or β Arietis.
2 <i>Bharanī</i> ,	..	12		6 40	36 ditto.
3 <i>Kṛitikā</i> ,	..	5		10 50	Alcyone?
4 <i>Rohini</i> ,	..	5	S.	9 30	87 Tauri.
5 <i>Mṛigasiras</i> ,	..	10		9 40	113, 116, 117 Tauri?
6 <i>Ardrā</i> ,	..	9		0 40	133 Tauri?
7 <i>Punarvasu</i> ,	..	6	N.	13 0	β Geminorum.
8 <i>Pushyā</i> ,	..	6		12 40	δ Cancri.
9 <i>Asleshā</i> ,	..	7	S.	2 20	49, 50 Cancri.
10 <i>Maghā</i> ,	..	0	N.	9 0	Cor Leonis.
11 <i>P. Phalgunī</i> ,	..	12		10 40	70, 71 Leonis.
12 <i>U. Phalgunī</i> ,	..	13		8 20	β Leonis.'
13 <i>Hastā</i> ,	..	11	S.	10 0	7, 8 Corvi.
14 <i>Chitrā</i> ,	..	2		6 40	Spica Virginis.
15 <i>Śvāti</i> ,	..	37	N.	12 20	Arcturus.
16 <i>Viśākha</i> ,	..	1 30	S.	13 0	24 Libræ.
17 <i>Anurādhā</i> ,	..	3		10 40	β Scorpīi.
18 <i>Jyeṣṭha</i> ,	..	4		2 20	Antares.
19 <i>Mulā</i> ,	..	9		1 0	34, 35 Scorpīi.
20 <i>P. Āshād'ha</i> ,	..	5 30		0 40	δ Sagittarii.
21 <i>U. Āshād'ha</i> , a	..	5		6 40	φ Sagittarii.
* <i>Abhijit</i> ,	b ..	60	N.	13 20	α Lyrae.
22 <i>Sravānā</i> ,	c ..	30		13 20	α Aquilæ.
23 <i>Dhanishṭha</i> , d	..	36		10 0	α Delphini.
24 <i>Satabhishā</i> ,	..	0 30	S.	13 20	λ Aquarii.
25 <i>P. Bhādrapadā</i> ,	24		N.	6 0	α Pegasi.
26 <i>U. Bhādrapadā</i> ,	26			3 40	γ Pegasi.
27 <i>Revatī</i> ,	..	0		13 10	ζ Piscium.

* What are called latitudes and longitudes in this Table, are only the distances already explained at page 99 by the Diagram.

Table 1.14

Sūrya Siddhānta Longitudes of the Nakṣatra *Yogatārā*

⁴⁴ Not much of their fault as the West has mostly inherited its sciences from the Persians and the Greeks.

⁴⁵ *A Historical View of the Hindu Astronomy* (1825), John Bentley, p.127

Given above, in the 4th column are the longitudes of *Yogatārā* within the *Nakṣatra*, as given in *Sūrya Siddhānta* (8.1-21). The 3rd column is constructed from it to show absolute longitudes, rightly from the start of *Aśvinī Nakṣatra* (*Aśvinī* 0°), a point also mistaken as the start of Aries (Aries 0°). But now that we know the truth, the puzzle of *Sūrya Siddhānta* longitudes stands solved. We only need subtract 3°20' (~3.33°, the span of a quarter *Nakṣatra*) from them to get their 12-Sign Zodiac longitudes from Aries 0°. The visible stars (mostly, Magnitude < 5) at these longitudes can be found by searching the star lists. Of these, those that also match the specified latitudes, as given in 2nd column, are the *Yogatārā*. These *Sūrya Siddhānta* *Yogatārā*, from that of *Aśvinī* at No. 1 to that of *Revatī* at No. 27, are shown in the table given below:

No	Star Name (Notation, Common Name)	Mag	True Lat.**	SS. Lat.	SS. Lon. (<i>Aśv</i>)	SS. Lon. (<i>Ari</i>)	True Lon (<i>Ari</i>)**
1	Ashv-3 (alPsc, Alrischa)	2	-9.17	10	8	4.67	4.123
2	Bhar-7 (beTri)	3	20.47	12	20	16.67	17.143
3	Krit-13 (etTau, Alcyone)	2.87	3.87	5	37.50	34.17	34.790
4	Rohi-12 (alTau , Aldebaran)	0.99	-5.59	-5	49.50	46.17	44.559
5	Mrig-13 (zeOri, Alnitak)	-2	-25.52	-10	63	59.67	59.466
6	Ardr-1 (alOri, Betelgeuse)	0.42	-16.26	-9	67.33	64.00	63.536
7	Puna-7 (beGem, Pollux)	1.15	6.55	6	93	89.67	88.298
7	Unnamed (phGem)	4.98	5.59	6	93	89.67	90.044
8	Ashl-1 (deCnc, Asellus Australis)	3.94	0.01	0	106	102.67	103.497
9	Unnamed (deHya, Mautinah)	4.14	-12.55	-7	109	105.67	105.167
9	Unnamed (alCnc, Acubens)	4.26	-5.24	-7	109	105.67	108.429
10	Magh-6 (alLeo, Regulus)	1.35	0.39	0	129	125.67	124.737
11	PPha-5 (thLeo, Coxa)	3.32	9.66	12	144	140.67	138.191
12	UPha-7 (beVir, Zavijava)	3.61	0.66	13	155	151.67	151.572
13	Hast-8 (deCrV, Algorab)	2.95	-12.03	-11	170	166.67	168.359
14	Chit-4 (alVir, Spica)	1.04	-1.94	-2	180	176.67	178.653
15	Unnamed (alCrB, Alphecca)	2.21	44.50	37	199	195.67	196.821
16	Vish-14 (gaLib, Zubenelakrab)	3.93	4.57	-1.5	213	209.67	209.885
17	Anur-18 (siSco, Alniyat)	2.91	-3.81	-3	224	220.67	222.595

No	Star Name (Notation, Common Name)	Mag	True Lat.**	SS. Lat.	SS. Lon. (Aśv)	SS. Lon. (Ari)	True Lon (Ari)**
18	Jyes-2 (alSco, Antares)	1.09	-4.34	-4	229	225.67	224.558
19	Mula-1 (upSco, Lesath)	2.70	-13.76	-9	24	237.67	238.804
20	Mula-16 (deSgr, Kaus Medis)	2.71	-6.23	-5.5	254	250.67	249.349
21	PAsh-5 (siSgr, Nunki)	2.06	-3.20	-5	260	256.67	257.163
	(beLyr, Sheliak) : [Abhijit]	3.52	56.20	60	266.67	263.34	263.780
22	UAsh-4 (alAql, Altair)	0.77	29.37	30	280	276.67	276.296
23	Unnamed (rhAql)	4.95	34.24	30	290	286.67	284.956
24	Shat-11 (laAqr, Hydor)	3.77	-0.33	-0.5	320	316.67	316.347
25	PBha-2 (zePeg, Homam)	3.40	17.75	24	326	322.67	320.976
26	Unnamed (bePeg, Scheat)	2.42	31.12	26	337	333.67	334.171
27	Unnamed (zePsc)	5.20	-0.24	0	359.50	356.17	354.613
** For 132 CE, based on the Vedic <i>Ayanāṁśa</i> that's explained in next section.							
Notation: 02 Letters of Alpha/Beta/Gamma etc. + 03 Letters of Constellation.							

Table 1.15
Actual Nakṣatra Yogatārā of Sūrya Siddhānta

It can be noticed that there is about an 80% match, without the need for any ‘explanation’. Some latitudes don’t match at all perhaps owing to their wrong measurement. Regardless, most of these *Yogatārā* definitions are formed clumsily⁴⁶ and can be ignored. The only point of listing these was to show that these observations of *Sūrya Siddhānta* were factually made. Also, as the reckoning point of *Sūrya Siddhānta* starts $\sim 3.33^\circ$ before Aries 0° , its assumed date (505 CE) stands shifted forward by 239 years ($3.33^\circ \times 71.75 \text{ years/}^\circ$) to 744 CE, after the time of *Brahmagupta* of Ujjain. Probably the original *Saura/Sūrya Siddhānta* was composed by *Vrddha Garga* (252 CE) and improved upon by later astronomers.

⁴⁶ The *Bhogā* of *Yogatārā* are given in SS as (48, 40, 65, 57, 58, 4, 78, 76, 14, 54, 64, 50, 60, 40, 74, 78, 64, 14, 6, 4, -40, 0, -20, 80, 36, 22, 79) from *Aśvinī*. Divide these by 80 and multiply by 13.33° to get *Yogatārā* longitude within the *Nakṣatra*. The *Yogatārā* of *U. Āśādha* lies in the middle of *U. Āśādha* while that of *Dhaniṣṭhā* lies at the start of last quarter of *Śrāvana*.

Now the reason as to why *Kṛttikā* remains the first *Nakṣatra* in all Vedic texts. The starting point of the present *Kalpa* (60,139 BCE), lies 6.5 *Manvantarā* before the starting point of present *Manvantara* (at 4174 BCE). Since 6 *Manvantara* cycles equal two full precession cycles which amount to the same point, the winter solstice position at the starting point of the *Kalpa* is virtually the same as that at the start of previous half *Manvantara*. As one *Manvantara* spans 9 *Nakṣatrā*, it can be made out that the winter solstice at the starting point of *Kalpa* was in the exact middle of *Kṛttikā Nakṣatra* that lies 4.5 *Nakṣatrā* away from the start of *Uttarā-Bhādrā* (in 4174 BCE).

5.2 Vedic *Ayanāṁśa*

As already stated, the *Ayanāṁśa* is nothing but the angular difference between the fixed Zodiac and the movable Zodiac defined by Vernal Equinox, in any era. There are many *Ayanāṁśā* in vogue from amongst which the *True Citrapakṣa Ayanāṁśa* is common. It assumes the first point of Aries being exactly opposite the Spica star. Although this is an arbitrary definition, it offers a little improvement to the Lahiri's *Citrapakṣa Ayanāṁśa* that's officially accepted by the Govt. of India. But none of these various *Ayanāṁśā* have precision as their definitions are rather arbitrary and lack a scientific basis.

First of all, a proper computational method for the *Ayanāṁśa* needs to be selected. There are two methods for achieving this, one based on a linear equation of the form ($y=a*x+b$) that utilizes the rate of precession as its basis, assuming it to be constant, and the other is to take a star as the anchor of fixed zodiac. The linear equation method for the computation of *Ayanāṁśa* is error-prone because the rate of precession is not always constant as the method assumes it to be. It is factually known to accelerate and decelerate randomly due to various interstellar forces on our Solar system, a fact that can be verified programmatically. But the method of taking a star as the zodiac anchor is quite acceptable

because the stars are mostly fixed in their mutual orientations and choosing a fixed star itself as the zodiac anchor makes the actual rate of precession irrelevant to the computation of *Ayanāṁśa* in any era. But since the stars also actually move mutually, even though very slowly for us, the best candidate for the Zodiac anchor star needs to have two properties: one, to be located as close to the ecliptic (the path of Sun) as possible and other, to be the least to move, at least longitudinally, when its positions are sampled by any given *Ayanāṁśa*, few thousand years apart, and the differences from its average position be taken into account. On a programmatic check, only one zodiacal star, the *Asellus Australis* (*Delta Cancri*), fulfills both these conditions and becomes the ideal star for our method of computing the correct *Ayanāṁśa*.

Now, when we check the position of winter solstice on the base date of Jan. 21, 4174 BCE with *True Citrapakṣa Ayanāṁśa*, which is the same as position of Sun at the exact time of Winter Solstice on 21.01.-4173 12:02:40 IST, its position comes to be at Pisces 01°14'16" (1.2377465446). This clearly needs to be at Pisces 0°, the error of 01°14'16" being due to use of only a possibly incorrect *Ayanāṁśa* in the first place. So, it's clear that a correction of 01°14'16" (1.2377465446°) needs to be applied to the *True Citrapakṣa Ayanāṁśa* of the day. But the conception of *True Citrapakṣa Ayanāṁśa* itself is rather faulty in its arbitrary assumption of first point of fixed Zodiac being exactly opposite the Spica star. So, the desired correction of 01°14'16" is applied instead to the position of star *Asellus Australis* on the true winter solstice of base year (21.01.-4173 12:02:40 IST), as computed by the very same *True Citrapakṣa Ayanāṁśa*. After this, our new *Ayanāṁśa* (the Vedic *Ayanāṁśa*) is defined as based on the initial position of *Asellus Australis* thus obtained. The position of *Asellus Australis* thus got is 104.730449785° before the correction and 103.4927032404° after the correction. Now when the position of our first winter solstice is checked again with our Vedic *Ayanāṁśa*, it comes out as Pis 00°00'01" (0.0002205916°). Applying this value again as a correction to the position of *Asellus Australis*, we get its fully-

correct fixed position as $103^{\circ}29'32.9375''$ (103.4924826488°). With this much done, we finally get the position of Winter Solstice at the start of 4174 BCE as exactly Pis 0° .

Since the computed position of *Asellus Australis*, at $103^{\circ}29'32.9375''$, is just a little ahead of $13^{\circ}20'$ position in Cancer where the (corrected) *Puṣya Nakṣatra* ends, it turns out that the star of *Asellus Australis* which was hitherto thought to be in the *Puṣya Nakṣatra*, actually lies just at the start of the next *Nakṣatra*, the *Āśleṣā Nakṣatra*. It's known that the more the magnitude, the less the visibility and that the faintest stars visible with the naked eye are of about Mag. 6.5, the normal ones about Mag. 4. With a magnitude of 3.94, *Asellus Australis* can be observed with naked eye and can be practically thought to be the *Nakṣatra* Marker in that the *Puṣya Nakṣatra* ends just $09'32.9375''$ before it.

Thus the Vedic *Ayanāṁśa* is logically derived from the principles of *Vedāṅga Jyotiṣa* instead of being based on some arbitrary assumptions and matches the ancient Indian conception of the *Nakṣatra* Zodiac, even through the early *Siddhānta* period. As a still further proof, if we take any other *Ayanāṁśa* for the *Rāmāyana* and *Mahābhārata* times, some planets end up being located in different *Nakṣatrā*, as can be noticed in Chapters 3 and 4. As the *Nakṣatra* boundaries have also been restored, even the starting point of *Āśleṣā Nakṣatra* needs to be defined in the *Ayanāṁśa* to avoid any possibility of confusion. So, the Vedic *Ayanāṁśa*, as well as the fixed *Nakṣatra* Zodiac, can be finally summarized thus:

- a) *Āśleṣā*, the 7th *Nakṣatra*, starts at (fixed) Cancer $13^{\circ}20'$
- b) *Asellus Australis*, the first star of *Āśleṣā Nakṣatra*, lies at $103^{\circ}29'32.9375''$ in Fixed Zodiac and at $13^{\circ}29'32.9375''$ in the (fixed) sign of Cancer

Table 1.16
Definition of Vedic *Ayanāṁśa* and Fixed Zodiac

In the *Jagannātha Horā*⁴⁷ Astrology software, the Vedic *Ayanāṁśa*, can be configured (presently only for the *Nakṣatra* Zodiac and *Nakṣatra Daśā*) by making the following settings, after navigating to “*Preferences -> Related to Calculations -> Ayanamsa*”:

- 1) Select the “Fixed star based CUSTOM Ayanāṁśa” option
- 2) Customize further by selecting “Subtract” option and specifying $3^{\circ} 20' 00''$, Press OK
- 3) Select the “Delta Cancri (Asellus Australis) <Long 14 Cn 51, Lat 0 deg>” option
- 4) Specify $13^{\circ} 29' 32.9375''$ from the beginning of Cancer, Press OK

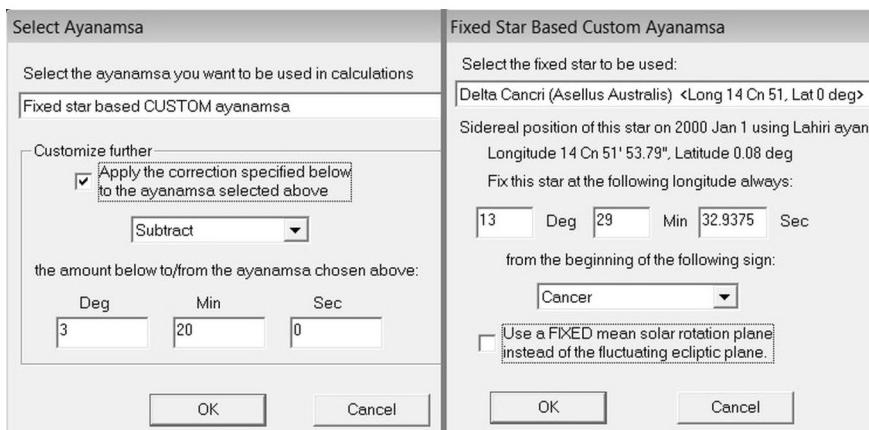


Figure 1.14
Setting the Vedic *Ayanāṁśa* in JHora Software

Now, the *True Citrapakṣa Ayanāṁśa* assumes the first point of Aries being exactly opposite the Spica star ($67\text{-}\alpha$, 67 Alpha-Virginis):

⁴⁷ Available to download at [VedicAstrologer.org/jh/]. P.V.R. Narasimha, its creator, advocates a *Puṣya-Pakṣa Ayanāṁśa* that fixes *Asellus Australis* at 106° in the fixed 12-Sign Zodiac. This can clearly be seen to be wrong as its position is $103^{\circ}29'32.9375''$. Narasimha has noted his value from the *Surya-Siddhānta* that's already been explained now. After having set the Vedic *Ayanāṁśa* in *Jagannātha Horā*, all the 12-Sign Zodiac longitudes, including the ascendant, given by it need to be subtracted by $3^{\circ}20'$.

Yogatārā of *Citrā Nakṣatra*) at 180° . But the actual position (Lon, Lat) of Spica in the fixed *Nakṣatra* Zodiac was (178.762° , -1.778°) in 4174 BCE and is now (178.606° , -2.055°) in 2017. It can be noticed that the *True Citrapakṣa Ayanāṁśa* is the closest *Ayanāṁśa* to the Vedic *Ayanāṁśa*. It's no wonder that the *Vimśottarī Daśā* seems to work just about fine. But, for all the reasons stated earlier, it's best to use the star *Asellus Australis* (Delta Cancri) as the Zodiac Anchor instead of using Spica.

It's now known that the present *Manvantara* started in 4174 BCE, was in the exact middle at (the start of) 132 CE and will end at 4437 CE (4436 CE will be the last year). As Vernal Equinoxes are at $\sim 90^\circ$ (anti-clockwise) to the corresponding Winter Solstice and as they are easier to understand for most people today, the era of present *Manvantara* can be rephrased as the era of Vernal Equinoxes in the range of Tau 30° –Aqu 0° , instead of that of Winter Solstices in the range of Pis 0° –Sag 30° .

If a simple mathematical rule still be preferred for quick calculation, the *Ayanāṁśa* can be calculated by dividing the years elapsed from 4174 BCE by 71.75 and counting the result backwards from the end of Quarter 3 of *Mṛgaśirā Nakṣatra*, which is also the end of Taurus, at 60° of fixed Zodiac. Take, for example, the present year of 2017. Up to the Vernal Equinox (VE) of year 2017, 6190 years (4174+2017-1) are spent, dividing it by 71.75 gives $86^\circ 16' 18''$. Subtracting 60° from this result gives us $26^\circ 16' 18''$ as the approx. value of *Ayanāṁśa* in 2017 (against an actual value of $25^\circ 28' 18''$). Alternatively, the spent years may also be counted from 132 CE and be divided by 71.75 to directly get the *Ayanāṁśa*.

5.3 *Nakṣatrā* Stars

Now that the *Nakṣatra* Zodiac and the *Ayanāṁśa* have been restored as per the original Vedic design, all the 259 generally visible Zodiacial stars (Latitude: $\pm 30^\circ$, Magnitude ≤ 4), of the 27 *Nakṣatrā* are listed in Appendix 'A'. Here, Latitude has been

chosen as $\pm 30^\circ$ because a 60° wide belt along the ecliptic represents the middle portion of the celestial sphere. Also, stars with Magnitude greater than 4 have been ignored because they are visible to naked eye only with difficulty.

5.4 *Vimśottarī Daśā*

The most popular event timing mechanism of *Rāsi* astrology is known as the *Vimśottarī Daśā*. In this *Daśā*, its total period of 120 solstitial years is divided amongst the 9 planets as [Ketu: 13, Venus: 20, Sun: 6, Moon: 15, Mars: 8, Rahu: 12, Jupiter: 19, Saturn: 10, Mercury: 17]. No basis for these allotments are found in any texts except a terse mention by *Varāhamihira* in *Bṛhad-Saṃhitā* wherein he gives the number of stars in each *Nakṣatrā* and states of the planetary years to be based on the number of these stars. By the very short mention of this most important subject, compared to his lengthy treatment of relatively unimportant subjects such as asteroids, it seems that *Varāhamihira* didn't know the star count and has quoted these numbers from some other text:

शिखिगुणरसेन्द्रियानलशिविषयगुणर्तुपञ्चवसुपक्षाः ।

विषयैकचन्द्रभूतार्णवाग्निरुद्राश्विन्वसुदहनाः ॥ BS 98.1

भूतशतपञ्चवसवो द्वात्रिंशञ्चेति तारकामानम् ।

क्रमशोऽश्विन्यादीनां कालस्ताराप्रमाणेन ॥ BS 98.2

3, 3, 6, 5, 3, 1, 5, 3, 6, 5, 8, 2 (पक्ष / *Pakṣa* = 2, not 15),

5, 1, 1, 5, 4, 3, 11, 2, 8, 3,

5, 100, 2 (not 15), 8, 32, these are the number of stars (in each *Nakṣatra*),
Starting from *Aśvinī* (*Nakṣatra*), their periods are equal to the stars.

Note: These are a total 240 stars. Adding up the stars for each Planet (3 *Nakṣatrā* each: 1, 10, 19 etc.), we get [19, 13, 16, 13, 9, 102, 12, 15, 41]. Normalizing these for 120 years, we get [9.5, 6.5, 8, 6.5, 4.5, 51, 6, 7.5, 20.5] as the planetary years indicated for Ketu-to-Mercury as per *Varāhamihira*.

As no single *Nakṣatra* (span $13^\circ 20'$) has as many observable stars (Magnitude < 4) as 100 and 32, these numbers provided by

Varāhamihira are rather useless, they also yield planetary years quite different from the ones specified for the *Vimśottarī Daśā*. Also, the statement of *Varāhamihira* that the basis of planetary years is the number of (observable) stars contained in the *Nakṣatrā* doesn't seem to be valid, as can be seen from the table below. From all the 259 generally visible Zodiacal stars provided in Appendix A, it can be made out that their distribution is relatively constant at about 28.77 stars per *Nakṣatrā* triad of the planets:

Planet (<i>Nakṣatrā</i>)	Nak. No.	Stars (A)	Nak. No.	Stars (B)	Nak. No.	Stars (C)	Stars (A+B+C)
Sun (1,10,19)	1	16	10	9	19	4	29
Moon (2,11,20)	2	15	11	8	20	7	30
Mars (3,12,21)	3	15	12	5	21	6	26
Rahu (4, 13, 22)	4	10	13	6	22	11	27
Jupiter (5, 14,23)	5	8	14	14	23	6	28
Saturn (6, 15, 24)	6	7	15	18	24	3	28
Mercury (7, 16,25)	7	10	16	11	25	6	27
Ketu (8, 17, 26)	8	6	17	18	26	7	31
Venus (9, 18,27)	9	7	18	14	27	12	33

Table 1.17
Nakṣatrā Star Count

It's not known what *Daśā* system, if any, was prevalent before the *Siddhānta* period. But a technically sound *Daśā* system, such as a simple *Nakṣatra Daśā* that is objective and of equal periods (e.g. 3 years each, $27*3 = 81$ years), may be formed, as compared against a subjective *Vimśottarī Daśā* that originated sometime during the early *Siddhānta* period. Also can be formulated a *Daśā* system that has as its basis the cumulative strength points of all stars in a given *Nakṣatra*. Stars of magnitudes 1, 2, 3, 4 or more maybe awarded 4, 3, 2, 1 strength points respectively and the strength points of each of the *Nakṣatra* triads be added and divided by 384, the total strength points for all the 259 stars, to get the strength ratios for each of the planets. These ratios can then be multiplied by 81, 108 or 120 to get the corresponding planetary periods.

6. Origin of 12-Sign Zodiac

It is commonly thought in the West that the Indians learnt the science of astronomy from the Greeks. This misunderstanding is tantamount to taking someone to be his grandfather's grandfather. The analysis of the Mesopotamian and Greek Zodiacs alongside the *Nakṣatra* Zodiac confirms to us that the modern western Zodiac of Greek origin is actually 5th stage devolution of the Vedic *Nakṣatra* Zodiac. It's also established in the next chapter that all Mesopotamian civilizations (Sumerian, Akkadian, Babylonian) originated in the Vedic Indian civilization.

Some of the old Mesopotamian texts are now recovered from the excavated clay tablets. One such astronomical text recovered from two tablets, the MUL.APIN, is dated 1000-686 BCE. Herein, some 18 stations, all named, are given to be lying on the path of Moon, leading us to believe that the Sumerians used an 18-Sign Zodiac. This is also the currently accepted theory but it is clearly wrong because there is no logic for having 18 stations. Having 12 stations for 12 full moons or 27 stations for each day of a sidereal month (Moon's full revolution around the Zodiac) is logical but having 18 stations makes no sense! Also, the first 9 of these stations, starting with MUL.MUL, seem to have a 1-to-1 correspondence with the first 9 *Nakṣatrā* that start with the *Kṛttikā Nakṣatra* (Pleiades). So, if the first 9 stations span only 120° of the Zodiac, how can the other 9 stations be taken to span the remaining 240° of the Zodiac? Clearly, the recovered text is missing 9 stations, adding which will complete the path of Moon to 27 stations which naturally correspond to the 27 days of Sidereal month.

No.	Sumerian / Akkadian	Notation	Meaning	Mapped Constellation	Equivalent Nakṣatra
1	MUL.MUL Zappu	MM	Star of Stars / Bristle	Pleiades	<i>Kṛttikā</i>
2	GU.AN.NA alû/is lê	GA	Bull of Heaven	Taurus / Hyades	<i>Rohiṇī</i>

No.	Sumerian / Akkadian	Notation	Meaning	Mapped Constellation	Equivalent Nakṣatra
3	SIPA.ZI.AN.NA šitaddaru/šidallu	SZ	Loyal Shepherd of Heaven	Orion	<i>Mṛgaśīrā</i>
4	ŠU.GI šibu	SG	Old One	Perseus	<i>Ārdrā</i>
5	ZUBI / GĀM gamlu	ZG	Scimitar / Crook	Auriga	<i>Punarvasu</i>
6	MAŠ.TAB.BA māšu	MT	Great Twins	Gemini	<i>Puṣya</i>
7	AL.LUL alluttu	AL	Crayfish	Cancer	<i>Āśleṣā</i>
8	UR.GU.LA urgulū/nēšu	UG	Lion	Leo	<i>Maghā</i>
9	AB.SÍN absinnu/šer'u	AS	Seed-Furrow	Virgo	<i>P. Phalgunī</i>
10	ZI.BA.AN.NA zibānītu	ZA	The Scales	Libra	<i>U. Phalgunī</i>
11	GÍR.TAB zuqaqīpu	GT	The Scorpion	Scorpius	<i>Hasta</i>
12	PA.BÍL.SAG pabilsag	PS	God Pabilsag / The Overseer	Sagittarius	<i>Citrā</i>
13	SUḪUR.MÁŠ suḫurmāšu	SM	Goat-Fish	Capricorn	<i>Svāti</i>
14	GU.LA šinundu/ku-ur-ku/rammanu	GL	Great One	Aquarius	<i>Viśākhā</i>
15	KUN.MEŠ zibbātu/zibbāt	KM	Tails	Pisces	<i>Anurādhā</i>
16	ŠÍM.MaḪ šinūnūtu	SI	Great Swallow	SW Pisces & Epsilon Pegasi	<i>Jyeṣṭhā</i>
17	LU.LIM anunitu/lulīmu	LL	Goddess Anunitu / Stag	NE Pisces and Andromeda	<i>Mūla</i>
18	LÚ.ḪUN agru	LH	Agrarian Worker	Aries	<i>P. Āṣāḍha</i>

Table 1.18
First 18 Stations of the Early-Sumerian Zodiac

It can be noticed that the meaning of 15th station of KUN.MEŠ is “*the tails*”. If the Early-Sumerian Zodiac was an 18-station Zodiac, how do “*the tails*” (end point or opposite point) exist at no. 15 and not at no. 18? Clearly, the Early-Sumerian Zodiac was a 27-station Zodiac that had a 1-to-1 correspondence with the 27 *Nakṣatrā* of the *Nakṣatra* Zodiac. Herein, the 15th station of KUN.MEŠ begins exactly opposite the center point of its first station which quite rightly justifies its name. So, the MUL.APIN text describes only the Late-Sumerian Zodiac that is missing 9 stations and not the Early-Sumerian Zodiac. Also, the Babylonian Zodiac is an altered form of this Late-Sumerian Zodiac because while its most station names tally with those from the Late-Sumerian Zodiac, it uses only 12 stations instead of 18. It’s obvious that the Babylonians reduced the 18 stations to 12 as having 18 moon-stations made no sense. One difference here was that the center point of MUL.MUL, the first station of Late-Sumerian Zodiac, became the starting point of GU.AN.NA (GA), the first station of the Babylonian Zodiac. This Babylonian Zodiac was inherited by the Greeks after Alexander’s conquest of Babylon in 321 BCE and, after sometime, it became the modern 12-Sign Zodiac of the western world:

No.	Sumerian	Notation	Translation	12-Sign Zodiac
1	GU.AN.NA	GA	<i>Heavenly Bull</i>	Taurus (Ta)
2	MASH.TAB.BA	MT	<i>Twins</i>	Gemini (Ge)
3	DUB	DU	<i>Pincers, Tongs</i>	Cancer (Cn)
4	UR.GULA	UG	<i>Lion</i>	Leo (Le)
5	AB.SIN	AS	<i>Father was Sin</i>	Virgo (Vi)
6	ZI.BA.AN.NA	ZA	<i>Heavenly Fate</i>	Libra (Li)
7	GIR.TAB	GT	<i>That claws and cuts</i>	Scorpio (Sc)
8	PA.BIL [.SAG]	PS	<i>Defender / Archer</i>	Sagittarius (Sa)
9	SUHUR.MASH	SM	<i>Goat-Fish</i>	Capricorn (Cp)
10	GU [.LA]	GL	<i>Lord of the Waters</i>	Aquarius (Aq)
11	SIM.MAH	SI	<i>Fish</i>	Pisces (Pi)
12	KU.MAL	KU	<i>Field Dweller</i>	Aries (Ar)

Table 1.19

Babylonian Zodiac: 12-Signs starting with Taurus

The only differences were that while the Babylonian Zodiac and its predecessors were fixed Zodiacs, that of Greeks was a movable Zodiac defined by the vernal equinox and it started with KU.MAL (KU, Aries), the 12th station of Babylonian Zodiac, as the Vernal Equinox of their time lay near the start of KU.MAL. The 5 stages of the devolution of the *Nakṣatra* Zodiac that led to the birth of the 12-Sign Zodiac are shown in the diagram below:

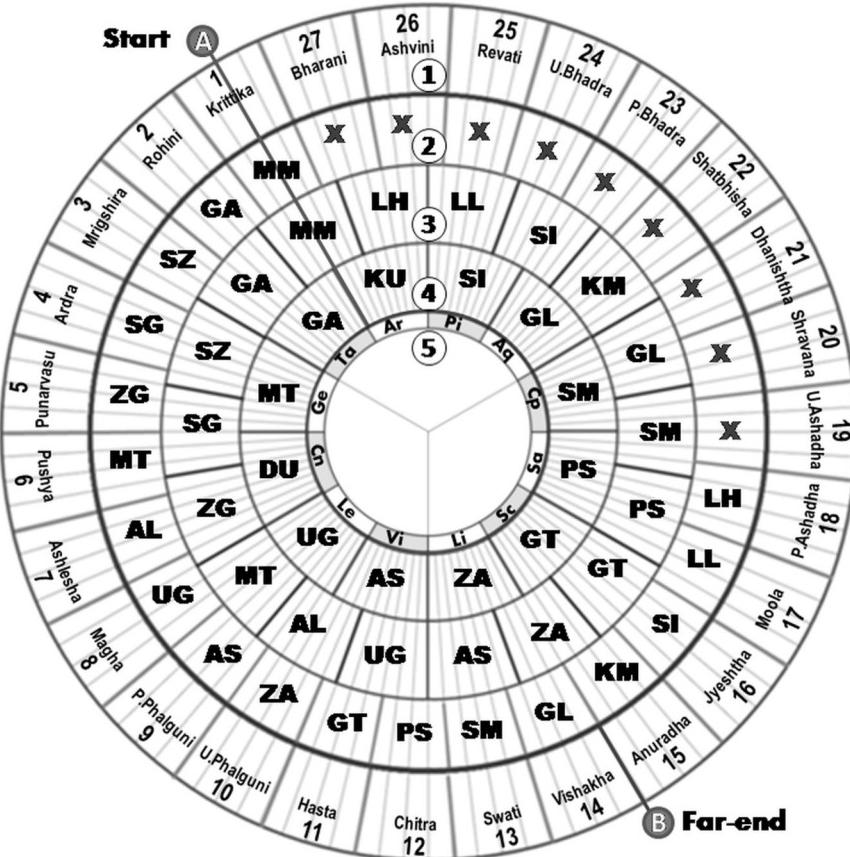


Figure 1.15
The Precursors of Modern Fixed Zodiac

The *Nakṣatra* Zodiac starts at the center point of its very first *Nakṣatra*, the *Kṛttikā Nakṣatra*, the Early and Late Sumerian Zodiacs similarly started at the center point of MUL.MUL. The center

points of *Kṛttikā Nakṣatra* and MUL.MUL are coincident and exist at exactly 30° of the (Fixed) 12-Sign Zodiac, a point that is just about 1° behind the star Krit-5 (Beta-Persei, Algol). So, there remains little doubt that the modern 12-Sign Zodiac is a 5th stage devolution (great great-grandson) of the *Nakṣatra* Zodiac that still continues in India, in its original form. The only difference is that the Indian astronomers of *Siddhānta* period, in their eagerness to adopt the 12-Sign Zodiac, started their count from the 26th *Nakṣatra* of *Aśvinī* that was located near the Vernal Equinox (start of Aries) of their time. About 600 CE, some Indian and Muslim astronomers mistook the start of *Aśvinī* to be at Aries 0°, a misconception that perpetuated in India with the coming of Mughals and that moved forward the original *Nakṣatra* Zodiac by a quarter *Nakṣatra*. Now the original *Nakṣatra* Zodiac has been restored.

7. Greek Astronomy

The Greek works of the Hellenistic period that came after Alexander's conquest of Babylon (321 BCE), are known variously as the Greco-Chaldean/Greco-Roman/Hellenistic works. After inheriting the astronomical sciences from Babylonians, the Greeks started noting down the star positions in a systematic manner and their reference point was the Vernal Equinox ("the beginning of Aries" of their movable Zodiac) because nobody seemed to know the exact boundaries of the Fixed Zodiac anymore. In 130 BCE, the Greek astronomer Hipparchus defined the Vernal Equinox of his time by pitching it diagonally opposite the Spica star ("Beginning of Aries rises when Spica sets")⁴⁸. Hipparchus also noted that while the longitude of Spica (67- α, 67 Alpha) was 174° as per him, Timocharis had noted it as 172°. As per Hipparchus, Timocharis made his observations 166 years earlier, in 296 BCE. But, as we

⁴⁸ His observation was made at Rhodes Island (Latitude: 36.44°) on an Autumnal Equinox Day, a day when Sun's Longitude is 180°. For the year of 130 BCE, this day was Sep 26 (21:44:54 EET).

now know the true average precession rate to be 1° for every 71.75 years, Timocharis must have made his observation only about 144 years before in 274 BCE, if the noted 2° difference was exact, and not in 296 BCE as Hipparchus had calculated. Now, to Hipparchus, his “ 2° Shift in 166 years” observation also looked to be the case for other zodiacal stars but, to play it safe, he reported that zodiacal star longitudes underwent “*At least 1° Shift in 100 years*”. This was the Precession of the Equinoxes, as unknown in his times. Hipparchus had access to 150 years of eclipse data and other astronomical records of Alexandria observatory, based on which he prepared a star catalog of 850 stars. This star catalog of Hipparchus is not available in original and it was plagiarized by Claudius Ptolemy (92 CE), a later Greek astronomer, who seems to have simply added $2^\circ 40'$ to the values of Hipparchus. This is so because the longitude of Spica that was 174° as per Hipparchus is mentioned to be $176^\circ 40'$ (176.6667°) in Ptolemy’s Star Catalogue⁴⁹. This increment of $2^\circ 40'$ (2.6667°), by the “ 2° Shift in 166 years” observation of Hipparchus, is equivalent to 221 years ($166 \times 2.6667 / 2$) that lay between Hipparchus (130 BCE) and Claudius Ptolemy (92 CE). So, Ptolemy compiled the Almagest in 92 AD (-129+221), 221 years later of 130 BCE. The other works of Hipparchus included spherical trigonometry, a table of chords/arcs that became the table of Sines of *Sūrya Siddhānta* (c. 266 CE) and a system of circular epicycles that later formed the basis of planetary computational models used in *Siddhānta* texts. Much about Hipparchus becomes known to us only through Strabo (64 BCE-24 CE), a Greek astronomer and geographer.

8. Indian Astronomy

Historically, there was never any need in Vedic astronomy to ‘compute’ the planetary positions because the *Nakṣatrā* and the planets were all well-known and visually recognized, as attested

⁴⁹ Ptolemy’s Catalogue Of Stars, C. Peters and E. Knobel (1915), p.62

by their accurate positions described in *Rāmāyana* (1299 BCE) and *Mahābhārata* (827 BCE). By observing the skies, the Vedic sages could easily tell as to which planet was in which *Nakṣatra*. Now, about 100-150 years from after the *Mahābhārata* war, the Indian pundits, unable to correctly translate their Vedic *Samskr̥t* texts, had lost their knowledge of the time cycles of the *Mahā-Yugā* and the *Yugā*. But as their Vedic calendar seems to have been computed just fine till about 500 CE, it seems they had only forgotten that its basis was the *Mahā-Yuga* and *Yuga* cycles. Forgetting the actual spans of the *Mahā-Yuga* cycles, they didn't remember anymore as to when the *Mahābhārata* war took place because all that was known was that it took place at the end of 28th *Dvāpara-Yuga*. There was a great confusion about the time that had elapsed since then. Then came the Buddhist onslaught on Vedic culture (c. 500 BCE), followed by the extermination of all kings of ancient lineages by *Mahānandī* (Gen.131, 404 BCE), the son of a barber. Then, in 321 BCE, came the Greeks with their king Alexander who wished to conquer India but turned back from its western frontiers itself. While the non-Vedic and non-*Kṣatriya* kings had now come to rule Indian territories, the *Śaka* and *Yavana* satraps held sway in the western regions of India. All these events that shook the foundations of Vedic faith also opened up informational & cultural exchange with the *Yavana* dominions.

Here, it should be clarified that the *Yavānā* and the Greeks that came with Alexander were two distinct people. The Greek timeline begins at only ~1200 BCE, at the beginning of a 300-year period of Greek Dark Ages, whereas the tribes of *Yavana* (यवनः) were the descendants of *Turvasu* (Gen.54, 2637 BCE), the son of king *Yayāti* (Gen.53, 2666 BCE) of the Lunar lineage⁵⁰. As they

⁵⁰ King *Yayāti* had aged prematurely under a curse from his father-in-law who said that he could be youthful again for some time but only if someone else agreed to swap his youth for his old-age. So, king *Yayāti* asked his 5 sons (*Yadu*, *Turvasu*, *Druhyu*, *Anu* and *Puru*) turn-by-turn if they would swap their youth with his old-age for 10 years. None, except

were cast out of the Vedic *Ārya* religion, they were settled in the south-western regions of *Āryāvarta* (India). Many Greeks who accompanied Alexander had also settled down in these very regions (~321 BCE). Hereafter, these Greeks were named in India as the *Yona* (योनः):⁵¹ people, in differentiation to the original *Yavana* tribes. No reference to any *Yonā* before this time is found in the Indian literature. So, to think that it was the Greeks who were the original *Yavanā* is wrong. What is highly likely though is that the Greeks themselves originated from the *Yavanā*. This is so because the *Śamskr̥t* word *Yona* seems evolved from the *Śamskr̥t* word *Yavana*, meaning those who are descended from *Yavanā*. It's only with the passage of time that both the *Yavanā* and the Greeks (*Yonā*), settled in these south-western regions of India, collectively came to be referred as simply the *Yavanā*. Their dominions were subjugated by a very strong *Mauryan* empire. With the weakening of *Mauryan* Empire after the death of *Aśoka*, some of them declared independence and engaged in conquests of inner territories of India. *Caṣṭana* was such a *Yavana* satrap who won Ujjain, a great learning and political center in this time, from *Suśarman* (Gen.147, 61 CE), the last ruler of *Kaṇva* dynasty, and started the *Śaka* Era (78 CE) there in memory of his victory. The empire of *Caṣṭana*, noted as Indo-scythia by Ptolemy⁵², was spread from Patalene (now in Pakistan, a city near the mouth of Indus River) in the West to Ujjain in the east. Hereafter the *Yavana* horoscopy got introduced in India as the inner western parts of India, including Ujjain, remained occupied by the *Yavanā* and *Śakā*

Puru, the junior-most son, agreed to this at which *Yayāti* cursed the first 4 sons variously and provided the kingdom to *Puru* at the expiry of 10 years. While *Puru* carried forward the Lunar lineage, from *Yadu* sprang the *Yādavā*, from *Turvasu* the *Yavanā*, from *Druhyu* the *Bhojā* & *Gāndhārā* and from *Anu* the *Mlecchā*.

⁵¹ The inscriptions of Mauryan times, the *Mahābhāṣya* of *Patañjali* refers to *Yavana* and *Yona* separately. In the *Shāhbāzgarhi* Rock Edict 13 (verse 9) of *Aśoka* (~250 BCE), Antiochus is referred to as "Aṁtiyoko nama Yonaraja" ("the Greek/Yona king by the name of Antiochus").

⁵² Geographia, Book 7, Chapter I

for the next 300 years, until all these areas were finally liberated by the king *Candra Gupta II (Kalki Avatāra)* in about 380 CE. These *Yavana* and *Śaka* satraps knew many languages including Greek and *Saṃskṛt* as evident from their bilingual coins. One such coin of Menander II (90-85 BCE) has Greek on one side and *Saṃskṛt* (written in Kharosthi script) on the other side:



Figure 1.16

Silver drachma of Menander II (Ref: MIG 229b, Bop 2B)

Greek Legend	<i>Saṃskṛt</i> Legend (in Kharosthi)
<i>Basileos Dikaiou Menandriou</i>	महाराजस् धार्मिकस् मीनन्द्रस्
King, the just, Menander's	King, Religious, Menander's
Meaning: "Of the Religious King Menander"	

The Greeks that got settled amongst the *Yavana* continued to communicate and trade with their lands. With time, some Greek texts found their way in these *Yavana* dominions. As the *Yavānā* also worshipped the Vedic gods, they vedicized the 12-Sign Zodiac of the Greeks and also incorporated in their texts some Greek concepts that were missing in Indian astrology. One such *Yavana* astrological text was translated in *Saṃskṛt* by a *Yavaneśvara* in 149 CE (*Śaka* Year 71), the lord of *Yavānā*, as the titles of *Yavaneśvara* and *Yavanarāja* (lit. “The lord/king of *Yavānā*”) applied to the *Yavana* satraps. This work was subsequently versified in *Saṃskṛt* meter by the *Yavana* satrap *Sphujidhvaja* in 269 CE (*Śaka* Year 191) and is now available as the *Yavanajātaka* (lit. “*Yavana* Nativity”). The *Vṛddha-Yavanajātaka* is another such work

translated by the *Yavana* satrap *Mīnarāja* who ruled at *Mīnanagara*, either the one near *Bhṛgukaccha* (the present-day Bharuch, Gujarat) or the one near the mouth of Indus (now Karachi, Pakistan). It is *Sphujidhvaja* who tells us that his work is a versified redaction of the work of *Yavaneśvara* who had translated into *Śaṃskṛt* prose a *Yavana* astrological work⁵³. Many Greek-origin terms, and their phonetic equivalents in *Śaṃskṛt*, can be clearly seen to exist in the *Yavanajātaka*, as also shown below:

No	Greek Term	YJ <i>Śaṃskṛt</i> Term	Meaning
1	Kentron	<i>Kendra</i>	Angular House (1,4,7,10)
2	Trigonon	<i>Trikona</i>	Trine House (1,5,9)
3	Dekanos	<i>Dreṣkāṇa</i>	10° divisions of Zodiac, equaling a third of a Sign
4	Epanaphora	<i>Panaphara</i>	Succedent House
5	Apoklima	<i>Apoklima</i>	Cadent House
6	Kenodromia	<i>Kemdruma [Yoga]</i>	a void of course Moon
7	Sunaphe	<i>Sunaphā [Yoga]</i>	A yoga of Moon

Table 1.20
Greek-Origin Words in *Yavanajātaka*

But, at the same time, the existence of Vedic gods such as *Brahmā*, *Prajāpati* and *Īśvara* (*Śiva*) in the *Yavanajātaka* is clearly not a Greek conception because the Greeks didn't worship the Vedic gods, sparing some of those that were settled in the *Yavana* dominions. Also, as the *Yavanajātaka* is stated to be simply a versification of a translation of an original text, the original text couldn't be Greek at all. So, what was originally translated was a *Yavana* text that was a synthesis of Greek and Indian astrology.

Just as a new wife appears more attractive, no matter how lovable the old wife may be, the Indian pundits of the *Yavana* and *Śaka* territories readily accepted the *Yavanajātaka*, the versified *Śaṃskṛt*

⁵³ "There was a wise king named *Sphujidhvaja* who versified this entire text, which was seen by him in the year 191, in 4,000 *Indravajra* verses." - YJ 79.62

form of *Yavana* astrology that used a 12-Sign Zodiac ruled by the Vedic gods. They thought that this new *Yavana* knowledge was of an ancient *Ārya* origin⁵⁴ and they blended it back with the *Nakṣatra* Zodiac and evolved new *Daśā* systems, such as the *Vimśottarī Daśā* of 120 years, used for event-timing in predictive astrology. With the sanction of learned Ujjain pundits such as *Vrddha Garga* (252 CE), the astrology of *Yavanajātaka* started spreading to other parts of India. This gave rise to *Rāśi* (Sign) Astrology, a unique form, practiced in India to this day.

The Hipparchus connection of *Yavanajātaka* is quite clear as it mentions its *Yuga* (here meaning only a general epoch) to be of 165 years which, quite clearly, is a calendrical adaptation of the original “ 2° Shift in 166 years” observation of Hipparchus. But this 165-year *Yuga*⁵⁵ was never adopted by the Indians as they had their own *Yuga* problems to sort out. Now the *Yavanajātaka* doesn’t contain any computational part of Zodiacial Astronomy. It was after this time when the data of Hipparchus such as his star catalogue, the spherical trigonometry formulae, the table of chords and the system of circular epicycles for calculation of planetary longitudes also made their way into India. This data also seems to have included the 150-year eclipse records from Alexandria observatory. All this data, combined with the brand new 12-Sign Zodiac, provided much food for thought to the Indian astronomers who tested it, made corrections and evolved their own planetary models known as the *Siddhāntā* (lit. “the principles”) that they kept refining and adjusting over the next 400 years or so. This *Siddhānta* Period of Astronomy witnessed the birth of many *Siddhānta* texts such as the *Paitāmaha Siddhānta*, the

⁵⁴ This is stated to be so in *Sūrya Siddhānta* as well, that this knowledge was initially imparted by the Sun god to a religious *Asura* by name of *Māya / Mayasura*, who later revealed it to the *Yavanā*. So, it should be accepted as its ultimate originator is the Sun god.

⁵⁵ “Some who are students of the laws (of astronomy) find that it is good to follow the opinion of the sage Vasistha; (but according to) the best of the *Yavanā*, the *Yuga* should consist of 165 years.” – YJ 79.3

Vasiṣṭha Siddhānta, the *Romaka Siddhānta*, the *Pauliśa Siddhānta* and the *Sūrya Siddhānta*. It can be taken to be lasting roughly from 250 CE, about the time of *Vṛddha Garga*, to 1150 CE, about the time of *Bhāskarācārya* of *Siddhānta Śiromāṇi* fame. This was the time when the Indian astronomy shifted from being mostly observational to being computational. The *Mahā-Yuga* span was redefined by astronomers such as *Āryabhaṭṭa* so that it could suit their *Siddhānta*-computed planetary periods. This also led to *Āryabhaṭṭa*'s theory of a *Kali-Yuga* being of 432,000 years. *Āryabhaṭṭa* completely rejected the *Vedāṅga Jyotiṣa* and the Vedic time cycles as false and unintelligible and also adopted the 07 Weekdays and the Hour (the *Horā*, division of day in 24 parts) of the *Yavana* astrology. Here, it may be argued that there are some references to 12-Sign Zodiac and the Weekdays in the *Purāṇā* such as the *Viṣṇu Purāṇa*⁵⁶ but it should be understood that the *Purāṇā*, especially the more popular ones like the *Viṣṇu Purāṇa*, in their present form, contain many later insertions that are clearly unoriginal. The concept of 07 Weekdays is mentioned by *Āryabhaṭṭa* in his *Āryabhaṭṭīyam*:

भानामधः शनैश्चरसुरगुरुभौमाकंशुक्रवृथचन्द्राः ।
एषामधश्च भूमिर्मधीभूता खमध्यस्था ॥ AB 3.15
सप्तैते होरेशाः शनैश्चराद्या यथाक्रमं शीघ्राः ।
शीघ्रक्रमाद्वतुर्थाः भवन्ति सूर्योदयाद् दिनपाः ॥ AB 3.16

Beneath the asterisms lie Saturn, Jupiter, the Sun, Venus, Mercury, and the Moon (one below the other); and beneath them all lies the Earth like the hitching peg in the midst of space.

The seven planets beginning with Saturn, which are arranged in the order of increasing velocity, are the lords of the successive hours. The planets occurring fourth in the order of increasing velocity are the lords of successive days, which are reckoned from Sunrise (in Laṅkā, a fictitious point which lies at the intersection of Equator and the Meridian of Ujjain).

⁵⁶ शरद्वसन्तयोर्मध्ये विषुवं तु विभाव्यते ।
तुलामेषगते भानौ समरात्रिदिनं तु तत ॥ VP 2.8.67
कर्कटावस्थिते भानौ दक्षिणायनमुच्यते ।
उत्तरायणमप्युक्तं मकरस्थे दिवाकरे ॥ VP 2.8.68

Before the acceptance of 07 weekdays in India, the ruler of the day was the god of the ruling *Nakṣatra*, a system that also helped the people remember the *Nakṣatrā*. While the *Siddhānta* texts were given to complex, lengthy and error-prone calculations, the original Vedic system was mostly observational and a much more precise system. The Vedic system has 27/28 *Nakṣatrā* instead of the 12 Signs, the 15 days of the lunar fortnight instead of the 07 Weekdays and the *Muhūrta* of 48 minutes instead of the Hour of 60 minutes. The simplistic Vedic calendar is efficiently able to keep track of the entire lifetime of our solar system.

Finally, it was the “*Beginning of Aries rises when Spica sets*” observation of Hipparchus, made in 130 BCE only to define the Vernal Equinox of his time, that has come to be the official definition of fixed Zodiac, as accepted by the Govt. of India on the recommendation of Lahiri Commission (1950s). Its *Ayanāṁśa* is known as the *Lahiri Ayanāṁśa* or the *Lahiri Citrapakṣa Ayanāṁśa* with an epoch of 285 CE. But as *Lahiri Citrapakṣa Ayanāṁśa* uses linear calculations from an epoch, the position of Spica is now off 180° by about a degree and half. This gave rise to the *True Citrapakṣa Ayanāṁśa* that is now the most used *Ayanāṁśa* in India and that strictly implements the rule of Spica being located at 180° of the fixed Zodiac. But as we have already seen, none of these various *Ayanāṁśā* are correct.

Now, David Pingree, except for his attempts to attribute everything (even the ancient Indian astronomy) to Greeks and Babylonians and his mistaking the *Yavanā* as the Greeks, has done a commendable job in his investigation of the Modern Indian Astronomy, as envisaged in the *Yavanajātaka* and *Siddhānta* texts. This, he has dwelt on at large in his two papers, the “*Astronomy and Astrology in India and Iran*”⁵⁷ and the “*The Recovery of Early Greek Astronomy from India*”⁵⁸, that are available online for free. It’s

⁵⁷ ISIS, Vol. 54 No. 2 (Jun 1963), pp.229-246

⁵⁸ JHA, Vol. 7 Issue 2 (Jun 1976), pp.109-123

clear though that it's his lack of investigation into the origin of the 12-Sign Zodiac and the Mesopotamian Zodiacs that has made him arrive at some completely erroneous conclusions⁵⁹:

"Babylonian influence in astrology was equally great; in fact, the planets first appear in Indian literature because of it."

"This Kalpa of ultimately Babylonian origin was combined by Indian astronomers of the late fourth or early fifth centuries with Greek epicyclic theory."

Now, let's also understand the *Saptarṣi* Cycle and learn a little more of the background of some *Siddhānta* period astronomers such as *Vṛddha Garga*, *Āryabhaṭṭa*, *Varāhamihira* and *Brahmagupta*.

8.1 *Saptarṣi* Cycle & *Vṛddha Garga*

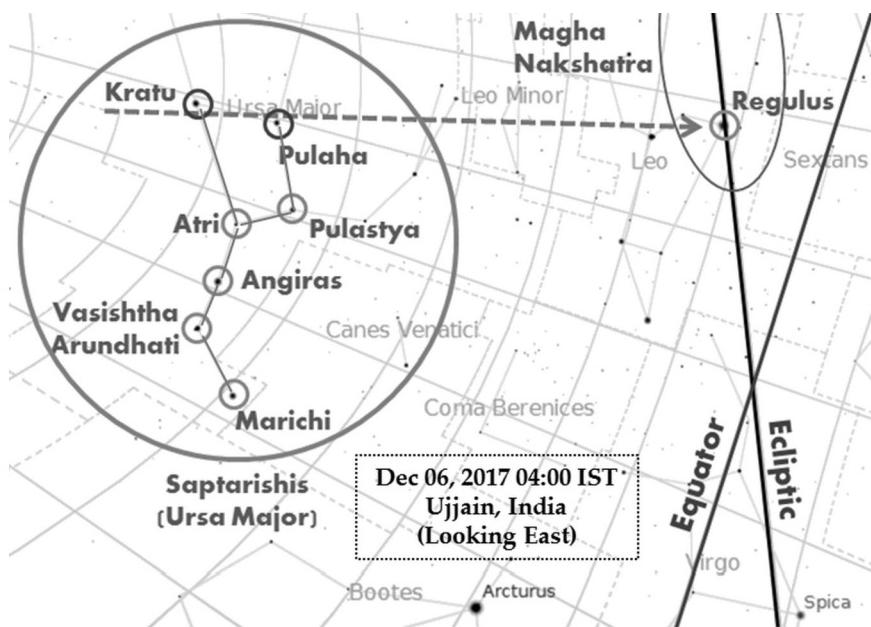


Figure 1.17

Saptarṣi pointing to *Maghā Nakṣatra* Q3 (Perspective Projection)

⁵⁹ "Astronomy and Astrology in India and Iran", ISIS, Vol. 54 No. 2 (Jun 1963), pp.229-246

In India, the constellation of Ursa Major, the Great Bear, is known as the *Saptarṣi* (lit. “the Seven Sages”), the seven stars of which, beginning from the bottom up and finishing anti-clockwise, as visible during its rise on the horizon, are known as *Marīci*, *Vasiṣṭha* (+*Arundhatī*), *Aṅgirasa*, *Atri*, *Pulastyā*, *Pulaha* and *Kṛatu* respectively, as also shown in the figure given above.

Before *Yavanajātaka* was composed, the Ujjain pundit *Vrddha Garga*⁶⁰ (lit. “the Senior/Elder *Garga*”) dated the last time of *Yudhiṣṭhira* (also the time of ascension of *Parikṣit*) to 2448 BCE based on the *Saptarṣi* cycle of 2700 years. This is made known to us by *Varāhamihira* in his *Bṛhad-Saṃhitā* (13.1-6)⁶¹ wherein he quotes the opinion⁶² of *Vrddha Garga*: “In Maghā Nakṣatra were the Seven Sages, when Earth was ruled by King Yudhisthira; add 2526 to Śaka Era years (expired) to get his (current) year. They stay in each Nakṣatra for 100 years”. As the Śaka Zero Year (78 CE) is taken to be the 2526th year, the Epoch year of *Kali-Yuga*, in Ujjain tradition, as envisaged by *Vrddha Garga* comes out to be 2448 BCE (78-2525).

⁶⁰ There must have been two *Gargas*, equally famous, a father and son duo. While the father was known as *Vrddha Garga*, the son was probably simply known as *Garga* or *Gargacharya*.

⁶¹ सैकावलीव राजति ससितोत्पलमालिनी सहासेव ।
नाथवर्तीव च दिग्ये: कौवेरी सप्तभिर्मुनिभिः ॥ BS 13.1
ध्रुवनायकोपदेशान्नरिनर्त्तिवोत्तरा भ्रमद्विश्च ।
यैश्वारमहं तेषां कथयिष्ये वृद्धगर्गमतात् ॥ BS 13.2
आसन्मधासु मुनयः शासति पृथ्वीं युधिष्ठिरे नृपतौ ।
षट्डिकपञ्चद्वि (2526) युतः शककालस्तस्य राजश्च ॥ BS 13.3
एकैकस्मिन्बृक्षे शतं शतं ते चरन्ति वर्षणाम् ।
प्रागुत्तरतश्चैते सदोदयन्ते सासाध्वीकाः ॥ BS 13.4
पूर्वे भागे भगवान् मरीचिरपरे स्थितो वसिष्ठोऽस्मात् ।
तस्याङ्गिरास्ततोऽत्रिस्तस्यासन्नः पुलस्त्यश्च ॥ BS 13.5
पुलहः क्रतुरिति भगवानासन्नानुक्रमेण पूर्वाद्याः ।
तत्र वसिष्ठं मुनिवरमुपाश्रितारुन्धती साध्वी ॥ BS 13.6

⁶² The Opinion of *Vrddha Garga* comes from a Puranic reference that states of the *Saptarṣi* staying in each *Nakṣatra* for 100 years.

Now, the time of *Vṛddha Garga* remains unknown from literature but a little thinking quickly reveals the time of his fixing the start of *Kali-Yuga* as the very end of year 252 CE. The *Saptarṣi* cycle of 2700 years has to finish with the end of 252 CE for him to have dated the start of *Kali-Yuga* to 2448 BCE ($2448+252=2700$). Fortunately for us, this also stands verified by the testimony of Al-Biruni⁶³ who has stated that, as per a Kashmir Almanac shown to him, the *Saptarṣi* had completed 77 years in *Anurādhā Nakṣatra* in the Śaka year 951 (1029 CE). This implies that *Saptarṣi* were at the start of *Anurādhā* 77 years before in 952 CE (1029-77). The end of *Maghā Nakṣatrā* (352 CE) lies only 6 *Nakṣatrā* (600 years) before the start of *Anurādhā* (952 CE), where *Vṛddha Garga* (252 CE) is supposed to be. It seems that the time of *Vṛddha Garga* was mistaken by *Kashmir* pundits by 100 years (1 *Nakṣatrā*) due to lack of clarity about his time in *Maghā Nakṣatrā* (at its start or its end), even as stated further by Al-Biruni: "Let us now first suppose that Garga is right, that he has not stated the precise place in Maghā which the Seven Rishis occupy". So, the time of *Vṛddha Garga* stands confirmed as 252 CE.

Now, how would have *Vṛddha Garga* known that the *Saptarṣi* cycle of 2700 years finished in his time? The answer to this lies in the very foolishness of the conception of the *Saptarṣi* cycle based on an inaccurate Puranic reference that the *Saptarṣi* stay in one *Nakṣatra* for 100 years and that they were at the end of *Maghā Nakṣatra* at the time of ascension of *Parīkṣit* that's commonly thought to be 36⁶⁴ years from the *Mahābhārata* war. It can be explained in detail thus: At the time of ascension of *Parīkṣit* after the *Mahābhārata* war, someone made an observation that the *Saptarṣi* were pointing at the end of *Maghā Nakṣatra*. Then, 100 years later, someone again

⁶³ Alberuni's India, Vol. 1 (1910, Kegan Paul), Chap. XLV, pp.391-393
Al-Biruni was a Persian scholar who extensively recorded almost everything about India during his visit in 1031 CE.

⁶⁴ As we will notice in the *Mahābhārata* chapter, ascension of *Parīkṣit* was in the 18th year from the war and not in 36th year.

made the same observation and concluded that the *Saptarṣi* stay in one *Nakṣatra* for 100 years and inserted this reference in the *Purāṇā*. Some time down the line, based on this reference, someone formulated a 2700-year Cycle that covered all the 27 *Nakṣatrā* and named it the *Saptarṣi* cycle. Thus was invented the *Saptarṣi* cycle because people, having already lost the true understanding of the *Yuga* cycles within 100-150 years of the *Mahābhārata* war, were struggling to know their actual timeline.

Vṛddha Garga, in 252 CE, also thought to test this observation and found out that the *Saptarṣi* were indeed pointing at the end of *Maghā Nakṣatra*. Thinking this to be a novel discovery, he trusted the *Saptarṣi* cycle of 2700 years to get rid of the *Yuga* confusion of that age and proceeded to fix the ascension of *Parikṣit*, and the start of *Kali-Yuga* with it, to 2448 BCE, which was 2700 years prior to his time. This formed the basis of Ujjain tradition, to which *Vṛddha Garga* belonged, in its taking the *Kali* epoch year to be 2448 BCE. The funny part is that *Vṛddha Garga* could find the *Saptarṣi* pointing at *Maghā Nakṣatra* because the *Saptarṣi* are always pointing at the *Maghā Nakṣatra*, irrespective of the age of observation, they don't move at all with respect to the ecliptic. This can be tested on any Planetarium software for any date. It comes across as a great surprise that the *Saptarṣi* era, of such a highly untenable base as just exposed, was even allowed to be formulated in the first place much less to have come in reckoning⁶⁵. It should also be mentioned by me that when this chapter neared completion, it came to my attention that *Bāla Gaṅgādhara Tilaka* had also mentioned of the *Saptarṣi* being fixed with respect to the *Nakṣatrā* and of *Vṛddha Garga* existing in middle of 3rd century.

⁶⁵ Most *Purāṇā*, in the form they are available today, are full of many such utterly false interjections, which can be culled out only with great discernment. One should be patient and wise like the ants that pick up only the sugar and leave out the salt and the dirt.

There is a paper on the *Saptarṣi* observation by Sule et al. (2007). Although the authors don't claim of *Saptarṣi* staying in a *Nakṣatra* for 100 years, I still differ with them on their adopted method of making the *Saptarṣi* observation. Their method of taking a vector from the Pole star that runs through the middle point of top two stars is unnatural and complex. The proper way to make the *Saptarṣi* observation is quite simple and intuitive, and suitable for the original age of observation, as also explained in *Viṣṇu Purāṇa*⁶⁶. One needs to stand facing the East as the *Saptarṣi* rise, in early morning, and see where the line passing through the middle of its top two stars (*Kṛātu* and *Pulaha*) intersects the ecliptic. This would visually be the north-south line for a person standing facing east. You will notice that this extended line always crosses the ecliptic just at Regulus that lies in the Q3 of *Maghā Nakṣatra*.

8.2 Āryabhaṭṭa

Āryabhaṭṭa, another Indian astronomer born 476 CE, compiled his astronomical text *Āryabhaṭṭiyam* in 499 CE at the young age of 23. He was from *Patalīputra* and wasn't a part of the *Ujjain* tradition of *Vṛddha Garga*, as he has stated in his text that he had no teacher in the Guru-disciple tradition of India, and that he was self-illuminated. By his time, many *Siddhānta* texts such as *Vasiṣṭha Siddhānta*, *Saura (Sūrya) Siddhānta*, *Romaka Siddhānta* and *Pauliśa Siddhānta*, derived from the Greek planetary computational models, were already formulated. Now, Āryabhaṭṭa was confused by the Vedic months not matching up with the exact time-points

⁶⁶ सपर्षीणां तु यौ पूर्वौ दृश्येते ह्युदितौ दिवि ।
तयोस्तु मध्ये नक्षत्रं दृश्यते यत्समं निशि ॥ VP 4.105
तेन सपर्षीयो युक्तास्तिष्ठन्त्यब्दशतं नृणाम् ।
ते तु पारीक्षिते काले मधा स्वासन्दिजोत्तमः ॥ VP 4.106

"Of *Saptarṣi*, the two (stars) that are seen first after their rise in the sky.
From (the line passing through) their middle, the *Nakṣatra* that is seen at the same level, in the night,
With that (*Nakṣatra*) the *Saptarṣi* stay for 100 years of men,
They were, at the time of *Parikṣit*, in *Maghā*, O Greatly Learned One!"

of Equinoxes and Solstices. What he didn't know was that the Vedic Calendar was meant to oscillate around Winter Solstice rather than to match the month starts to the Vernal Equinox/Winter Solstice. As the *Kali-Yuga* was taken to be of 1200 years in his time and as he himself has used this value in his work, he must have naturally thought that if *Kali-Yuga* started in 2448 BCE, why it didn't end 1200 years later in 1248 BCE. Āryabhaṭṭa must have also observed the *Saptarṣi*, 246 years later of *Vṛddha Garga*, only to find them still pointing at *Maghā Nakṣatra* while, according to the *Saptarṣi* cycle, they should have moved about 2.5 *Nakṣatrā* by this time. All this unexplained phenomena, with no traditional teacher to expound them to him, seems to have left Āryabhaṭṭa quite confused for he makes no mention of either the *Vṛddha Garga* or the *Saptarṣi* cycle in his work.

Faced with all these frustrations and the ready availability of the *Yavanajātaka* of *Sphujidhvaja* and some *Siddhānta* texts, he hastily trashed the entire Vedic system as false and incorrect and heartily promoted the new system of 12-Sign Zodiac, the 7 weekdays and the 24-hour system. As he also needed an epoch for his computations, he still wanted to somehow use the *Kali-Yuga* of 1200 year, as known to him⁶⁷. Not thinking much, he concluded that the 1200 years of *Kali-Yuga* must mean to be those of gods and to get the equivalent human years, 1200 should be multiplied by 360. So, he concluded that the duration of *Kali-Yuga* was 432,000 years (1200×360) and placed its epoch year in 3102 BCE (*Caitra S01*), 3600 years before his time (499 CE). As only 5000 or so years of *Kali-Yuga* are spent by his *Kali-Yuga* conception, the most Indians today continue to mentally live in the abyss of a never-ending *Kali-Yuga* of Āryabhaṭṭa. Such is the steep price for blind acceptance of religious theories without their sufficient pre-examination.

⁶⁷ Actually the *Mahā-Yuga* was then thought to be of 12,000 year. The *Kali-Yuga*, a 10th part of *Mahā-Yuga*, was thus taken to be of 1,200 years.

8.3 Varāhamihira

The astronomer-cum-astrologer *Varāhamihira* was born in *Kapittha*⁶⁸ in late 6th century and was one of the nine scholarly gems of Indian emperor *Harṣa Vardhana Vikramāditya* (592-647 CE). He followed the *Ujjain* tradition of *Vṛddha Garga*, his famed predecessor, and wrote various texts such as the *Pañca Siddhāntikā*, *Bṛhad-Saṃhitā* and *Bṛhad-Jātaka*. But he erred in defining the *Nakṣatra* Zodiac by equating *Maghā* 0° with Leo 0° (BS 102.1-7).

In *Pañca Siddhāntikā*, he reviewed the five famous *Siddhānta* texts⁶⁹ of his time, namely the *Vasiṣṭha Siddhānta*, *Saura (Sūrya) Siddhānta*, *Romaka Siddhānta*, *Pauliśa Siddhānta* and the *Paitāmaha Siddhānta*. In *Bṛhad-Saṃhitā* (13.1-6), *Varāhamihira* makes known his opinion on the epoch year of *Kali-Yuga* to be the same as that of *Vṛddha Garga*: "In Maghā Nakṣatra were the Seven Sages, when Earth was ruled by King Yudhisthira; add 2526 to Śaka Era years (expired) to get his (current) year". As the Śaka Zero Year (78 CE) is taken as 2526th year, the epoch year of *Kali-Yuga* of *Ujjain* tradition is 2448 BCE (78-2525). This is different from the conception of Āryabhaṭṭa who placed the epoch of his *Kali-Yuga* in 3102 BCE. As we will read later, this 654 year difference (3102-2448), of the epoch years of both these incorrect *Kali-Yuga* theories, is the cause of *Vikramāditya* (*Harṣa Vardhana*) remaining hitherto unidentified and being wrongly placed in 57 BCE rather than in his actual time in 598 CE (-56+654) when he won Ujjain from the Śakā in the last leg of his *Digvijaya* (conquest of the quarters) of India.

⁶⁸ Sankisa (Farukkhabad, UP), located about 80 km. north-west of Kannauj, is the *Samkashya* of ancient times, as also mentioned in the *Rāmāyaṇa* and *Māhābhārata*. Hiuen-Tsang mentions it as *Kapittha* as it was known in his days, it is one the important Buddhist pilgrim destinations.

⁶⁹ The *Saura (Sūrya) Siddhānta*, the most prevalent one, continued to evolve through the centuries. The *Paitāmaha Siddhānta*, with a *Yuga* cycle of five years, was a poor attempt at the synthesis of planetary computational models with the principles specified in the *Vedāṅga Jyotiṣa* text of *Lagadha*.

Varāhamihira also popularized a 60-year cycle, with all named years, which was based on heliacal risings of Jupiter in different *Nakṣatrā*, at the start of *Kārtikādi* years that began with the 10th month of *Kārtika*. By the evidence of inscriptions⁷⁰, it seems that the rules stated for its calculation were dropped and it was simply adopted as a continual 60-Year Solar Cycle.

1	<i>Prabhava</i> (668 CE)	21	<i>Sarvajit</i>	41	<i>Plavaṅga</i>
2	<i>Vibhava</i>	22	<i>Sarvadhbāri</i>	42	<i>Kilaka</i>
3	<i>Śukla</i>	23	<i>Virodhi</i>	43	<i>Saumya</i>
4	<i>Pramoda</i>	24	<i>Vikṛti</i>	44	<i>Sādhārana</i>
5	<i>Prajāpati</i>	25	<i>Khara</i>	45	<i>Virodhakṛta</i>
6	<i>Āngirasa</i>	26	<i>Nandana</i>	46	<i>Paridhbāvi</i>
7	<i>Śrīmukha</i>	27	<i>Vijaya</i>	47	<i>Pramādī</i>
8	<i>Bhāva</i>	28	<i>Jaya</i>	48	<i>Ānanda</i>
9	<i>Yuva</i>	29	<i>Manmatha</i>	49	<i>Rākṣasa</i>
10	<i>Dhāta</i>	30	<i>Durmukhi</i>	50	<i>Nala</i>
11	<i>Īśvara</i>	31	<i>Hevalambī</i>	51	<i>Pīngala</i>
12	<i>Bahudhānya</i>	32	<i>Vilambī</i>	52	<i>Kālayukta</i>
13	<i>Paramārthī</i>	33	<i>Vikārī</i>	53	<i>Siddhārthī</i>
14	<i>Vikrama</i>	34	<i>Śārvari</i>	54	<i>Raudra</i>
15	<i>Vṛṣa</i>	35	<i>Plava</i>	55	<i>Durmati</i>
16	<i>Citrabhānu</i>	36	<i>Śubhākṛta</i>	56	<i>Dūḍubhi</i>
17	<i>Svabhānu</i>	37	<i>Śobhākṛta</i>	57	<i>Rudhirodgāri</i>
18	<i>Tāraṇa</i>	38	<i>Kroḍhī</i>	58	<i>Raktāksī</i>
19	<i>Pārthiva</i>	39	<i>Vishvāvasu</i>	59	<i>Kroḍhana</i>
20	<i>Vyaya</i>	40	<i>Parābhava</i>	60	<i>Kṣaya</i> (727 CE)

Table 1.21
60-Year Jovian Cycle (727 CE = *Kṣaya* year)

⁷⁰ All Inscriptions from CII, Vol. VI:

[Janjira Plates of *Aparajita* (5, p.17), SS.915 (993 CE, *Vijaya*, *Śrāvāṇa*)
 Bhandup Plates of *Chitraraja* (9, p.54), SS.948 (1026 CE, *Kṣaya*, *Kārtika*)
 Thana Plates of *Nagarjuna* (13, p.75), SS.961 (1039 CE, *Paramārthī*, *Śrāvāṇa*)
 Bassein Stone Ins. of *Mallikarjuna* (29, p.153), SS.1083 (1161 CE, *Vṛṣa*, *Pauṣa*)
 Lonad Stone Ins. of *Aparaditya II* (30, p.156), SS.1106 (1184 CE, *Kroḍhī*, *Kārtika*)
 Kutapur Grant of *Bhoja II* (64, p.282), SS.1113 (1191 CE, *Virodhakṛta*, *Mārgaśīrṣa*)
 Khidrapur Ins. of *Singhana* (65, p.287), SS.1136 (1214 CE, *Śrīmukha*, *Caitra*)]

Now, *Varāhamihira* hasn't indicated the years of his compositions anywhere. His birth year also remains unknown. *Amarāja*, in his commentary on *Khaṇḍana-Khaṇḍa-Khādya* of *Sri Harṣa*⁷¹, surmises that *Varāhamihira* died in the Śaka year 509 (587 CE). Clearly, *Amarāja* is only making this assumption on the basis of *Lāṭadeva* Era (SS.427, 505 CE) that is provided in *Pañcasiddhāntikā*⁷² as the epoch of *Romaka Siddhānta*. *Kālidāsa* has also similarly stated a rule in his *Jyotiḥvidābhāraṇa* for finding *Ayanāṁśa* by taking the Śaka year 445 (523 CE) as basis and to divide the remainder by 60, but it can hardly be considered to be his birth year. As we will read in detail in 2nd chapter, *Kālidāsa* started composing *Jyotiḥvidābhāraṇa* in *Kali*.3067 (620 CE) wherein he has mentioned *Varāhamihira* as his famous colleague. So, quite clearly, *Varāhamihira* existed in 620 CE and was most likely about the same age as *Kālidāsa*. As *Kālidāsa* calls himself a same-age friend of king *Vikramāditya* (*Harṣa Vardhana*) who was born in 577 CE, he was likely born about the same time whereas *Varāhamihira* may have been born sometime in between 567-587 CE (577+/-10 years). In 2011, it was mischievously claimed by some that *Varāhamihira* has provided his date of birth in a *Kutūhala Mañjarī* as *Caitra* S08 of *Kali*.3042 (594 CE), a *Jaya* year of his 60-year cycle⁷³. Firstly, no such text or manuscript as *Kutūhala Mañjarī* exists and secondly, the year 594 CE is not a *Jaya* year but the 20th from it, a *Pramādī* year. So, quite clearly, this claim is invalid. As per *Utpala Bhṛṭṭa* (*Bhṛṭṭotpala*, SS.888, 966 CE), who wrote the commentary *Cintāmaṇi* on *Brhad-Saṃhitā* and *Vivṛti* on the *Brhad-Jātaka*, *Varāhamihira* died at a ripe age of 90.

⁷¹ This *Harṣa* is not the king *Harṣa Vardhana* but the logician *Harṣa* who is said to have been defeated in debate by the Ādi Śaṅkara.

⁷² सप्तश्चिवेद (427) संख्यं शककालमपास्य चैत्रशुक्लादौ ।

अर्थास्तमिते भानौ यवनपुरे सौम्य दिवसाद्यः ॥ PS 1.8

⁷³ स्वस्तिश्री नृपसूर्यसूनुजशके याते द्विवेदाम्बरत्रै (3042),

मानाद्वमिते त्वनेहसि जये वर्षे वसन्तादिके ।

चैत्रे श्वेतदले शुभे वसुतिथावादित्यदासादभूद्,

वेदाङ्गे निपुणे वराहमिहिरो विप्रो रवेराशीर्भिः ॥

It is said that *Varāhamihira*'s original name was *Mihira*, the title of *Varāha* (lit. "a Boar") got affixed to his name as he had successfully predicted to king *Vikramāditya* (*Harṣa Vardhana*) that his son would meet death at 18 years of age, by a boar. Now, *Harṣa* had made his best efforts to safeguard this son by stationing him in a high building. Nonetheless, on the predicted day, his son was killed on the roof of that building by an iron flagstaff bearing the symbol of *Varāha* that broke away and fell on him. *Mihira* was suitably rewarded for his accurate prediction and came to be called *Varāhamihira*. As *Kālidāsa* mentions him as "the famous *Varāhamihira*" in 620 CE, it seems *Harṣa*'s son had already died before this time.

8.4 Brahmagupta

Brahmagupta, popularly known as *Jiṣṇusuta*, the son of minister *Jisnugupta* of *Harṣa Vardhana* and the grandson of king *Avantīvarman* of Nepal, is another famed astronomer and mathematician of this time, in the *Ujjain* tradition. He was a severe criticizer of *Āryabhaṭṭa* and states his own major work, the *Brahmā Sphuta Siddhānta*⁷⁴, to have been completed in 628 CE at an age of 30 which points to his being born in 599 CE. He was the first person to define and use zero. His mathematical work that had spread to Arabia, as stated by Al-Biruni, also found great acceptance in Europe. His *Khaṇḍa-Khādyaka*, also famous as *Al-Arkand* in Arabic, was completed in 664 CE; the year of 665 CE (SS.587) was the first (expired) year of Astronomers Era. After *Brahmagupta*, came the astronomers and mathematicians such as *Vijayanandī* of *Karaṇa Tilaka* (966 CE), *Śrīpati* of *Siddhānta Śekhara* (1039 CE) and *Bhāskarācarya* of *Siddhānta Śiromāṇi* (1150 CE), amongst many other eminent ones.

⁷⁴ श्रीचापवंशतिलके श्रीब्याघ्रमुखे नृपे थकनृपाणाम् ।

पञ्चाशत् संयुक्तैर्वर्षशतैः पञ्चभिरतीतैः (550) || BSS 24.7

ब्राह्मः स्फुटसिद्धान्तः सज्जनगणितज्ञगोलवित् प्रीत्यै ।

त्रिशद्वर्षेन कृतो जिष्णुसुतब्रह्मगुसेन ॥ BSS 24.8

9. Vedic Calendar

It's already stated that the rules of Vedic science of time, that takes the starting winter solstice of 4174 BCE (Jan 21) as its beginning point, were revealed by *Svayambhuva Manu* (the first *Brahmā*, Gen.28, 3391 BCE). The calendar that follows these rules is known as the Vedic calendar, this Vedic calendar was in continuous use in India, throughout the times of *Rāmāyāna* (1299 BCE), the *Mahābhārata* (827 BCE), Buddha's birth (563 BCE) and his *Nirvāṇa* (483 BCE), at least up to the start of *Siddhānta* period about 250 CE.

It is our conclusive discovery of the *Mahābhārata* war in 827 BCE that allows us to locate the starting point of Vedic calendar as Jan 21, 4174 BCE. As the *Mahābhārata* war occurred in the very last year of 28th *Dvāpara-Yuga* and the 29th *Mahā-Yuga* actually started in 814 BCE, 13 years later of the *Mahābhārata* war, all the later texts, up to this day in 2017, erroneously take the current *Mahā-Yuga* as 28th. This tells us that the knowledge of the actual time-spans of *Yuga* cycles was lost well within 100-150 years⁷⁵ of the *Mahābhārata* war. But the Vedic calendar, being mathematical in nature, carried on faultlessly at least until 250 CE, about the time of famous Indian astrologer⁷⁶ *Vṛddha Garga* (252 CE). As explained ahead, Buddha's birth in 563 BCE and his *Nirvāṇa* in 483 BCE stand completely validated on the Vedic calendar. Buddha's birth and his *Nirvāṇa* are known to be on the Full Moon Day of the month of *Vaisākha*. It is also known in the Buddhist tradition that it was *Viśākhā Nakṣatra* on both these days.

⁷⁵ This had probably something to do with the banishment of Brahmins by *Janamejaya* (4th generation from *Yudhiṣṭhīra*, son of *Parīkṣit*) who got into a dispute with them over some *Yajña* procedure and was also cursed in return. After this, *Janamejaya* is said to have handed over the reins of *Kuru* kingdom to his son *Śatānīka* (I) and retired to forest.

⁷⁶ It should be kept in mind that all the early Indian Astrologers / sages were competent astronomers as well since Astrology is intricately linked to Astronomy as per the Vedic sciences.

Looking at the Vedic calendars of both these years (563 BCE & 483 BCE) as given below, we find that the Moon was indeed in the *Viśākhā Nakṣatra* on the Full Moon Day of the *Vaisākha* month of both these years. This not only gives us the exact days of Buddha's birth (Apr 12, 563 BCE at Lumbini) and his *Nirvāṇa* (Mar 29, 483 BCE at Kushinagar) but also tells us that the Vedic Calendar and the events of Buddha's birth & *Nirvāṇa* stand mutually validated.

No	Month	First Day	Full Moon Day
Buddha's Birth (Apr 12, 563 BCE : Full Moon Day, <i>Vaisākha</i> Month)			
3	<i>Caitra</i>	27.02.-562	14.03.-562
4	<i>Vaisākha</i>	29.03.-562	12.04.-562 (FMP: 12.04.-562 05:04:48 IST)
5	<i>Jyeṣṭha</i>	27.04.-562	12.05.-562
Buddha's <i>Nirvāṇa</i> (Mar 29, 483 BCE : Full Moon Day, <i>Vaisākha</i> Month)			
3	<i>Caitra</i>	13.02.-482	28.02.-482
4	<i>Vaisākha</i>	15.03.-482	29.03.-482 (FMP: 29.03.-482 01:45:15 IST)
5	<i>Jyeṣṭha</i>	13.04.-482	27.04.-482

Table 1.22
Vedic Calendars of Years of Buddha's Birth & *Nirvāṇa*

Let's now learn the mathematical basis of construction of Vedic calendar, so we can begin to appreciate its beauty. It's been stated previously that normally a *Yuga* has 62 lunar months ($5*12+2$). As the synodic lunar month is of 29.530 days, a normal *Yuga* has 1830.86 days ($62*29.530$). Also, the time from one Winter Solstice Point to the next is known as the Solstitial year which is of 365.243 days. As the normal *Yuga* roughly equals 5 Solstitial years ($5*365.243$: 1826.215 days), the day count of a normal *Yuga* exceeds the day count of 05 Solstitial years by 4.68 days (1830.86 - 1826.215). As 4.68 days is the fundamental number underlying the computation of *Yuga* cycle, it should be remembered well.

Now, assuming an ideal *Yuga* to have started on a winter solstice day itself, the difference of +4.68 days can be treated as its offset

from the nearest winter solstice point, where the *Yuga* ended. This offset can be known as the ***Yuga-End Offset***, similarly, the offsets of each of the 5 *Samvatsara* within a *Yuga*, say the Yth *Yuga*, can be known as ***Year-End Offsets (Y, 1.5)***. Described more technically, the offset is the difference of the point of last new moon of a *Yuga* or the *Samvatsara* with the nearest winter solstice point.

At the end of the very first *Yuga*, the *Yuga-End Offset* of +4.68 days is from the winter solstice point itself. Every subsequent *Yuga*, the *Yuga-End Offset* of +4.68 days keeps accumulating with respect to the point of true winter solstice. When, in 06 *Yugā*, the *Yuga-End Offset* accumulates to +28.08 days (6×4.68), the last intercalary month of the 6th *Yuga* is dropped to synchronize the *Yuga* cycle with the winter solstice point. This means that every 6th *Yuga* of the *Yuga* cycle has only 61 lunar months instead of 62 months unless superseded by a still higher rule. But, as the synodic lunar month is of 29.530 days, this rule also introduces a lag of 1.44 days (29.530 days - 28.08 days) in the *Yuga-End Offset* every 06 *Yugā*. This lag grows to 14.41 days in 60 *Yugā* and would grow another 14.41 days in additional 60 *Yugā* leading to a total lag of 28.82 days in the *Yuga-End Offset* in 120 *Yugā*. To address this, an extra lunar month is inserted in the middle of 120 *Yugā* (at the end of 60th *Yuga*) so that a balance is again attained by the end of 120th *Yuga*. This means that the last extra lunar month of 60th *Yuga*, which was to be dropped due to its being a multiple of 6, is now not dropped. So, the 60th *Yuga*, in a 120 *Yuga* cycle (~600 Solstitial Years), is the only exception to the rule of every 6th *Yuga* being of 61 lunar months.

With these simple rules in place, in a time cycle of 120 *Yugā*, there is only a negligible *Yuga-End Offset* of +0.695 day from the nearest winter solstice point, allowing the cycle of 120 *Yugā* to repeat almost perfectly a total of 71.75 times till it covers 1722 *Yugā* (8610 years) where the time cycle of 1722 *Yugā* itself starts repeating endlessly, just the same as it started in the very first *Yuga*. These rules, in ascending order of precedence, are:

- 1) Every *Yuga* is of 62 lunar months
- 2) Every 6th *Yuga* is of 61 months, unless overruled
- 3) Every 60th *Yuga*, in a cycle of 120 *Yugā*, is of 62 months, as an exception to rule 2
- 4) This time-cycle of 120 *Yugā*, which equals 600 years or 7421 lunar months or 5 *Mahā-Yugā*, repeats a total of 71.75 times for a time period of one *Manvantara* (8610 years)
- 5) The *Manvantara* cycle of 8610 years (120×71.75) repeats endlessly, with a little additional offset of about -0.362 days every successive *Manvantara*

Table 1.23
Vedic Calendar Rules

The following table provides the mean values of Yuga-End Offsets from their nearest winter solstice point, for the very first *Mahā-Yuga* (24 *Yugā*, 120 *Samvatsarā*, ~120 Solstitial Years):

Yuga No.	Ending Months	Lunar Days (A)	Solar Days (B)	Yuga-End Offset (C)**	Adj. Yuga-End Offset (C-1.36)**
1	62	1,830.90	1,826.22	4.68	3.32
2	124	3,661.79	3,652.43	9.36	8.01
3	186	5,492.69	5,478.65	14.04	12.69
4	248	7,323.59	7,304.86	18.73	17.38
5	310	9,154.48	9,131.08	23.41	22.06
6	371	10,955.85	10,957.29	-1.44	-2.79
7	433	12,786.74	12,783.51	3.24	1.89
8	495	14,617.64	14,609.72	7.92	6.57
9	557	16,448.54	16,435.94	12.6	11.26
10	619	18,279.43	18,262.15	17.28	15.94
11	681	20,110.33	20,088.37	21.97	20.63
12	742	21,911.70	21,914.58	-2.88	-4.22
13	804	23,742.59	23,740.80	1.8	0.46
14	866	25,573.49	25,567.01	6.48	5.14
15	928	27,404.39	27,393.23	11.16	9.82
16	990	29,235.28	29,219.44	15.84	14.51
17	1052	31,066.18	31,045.66	20.52	19.19

Yuga No.	Ending Months	Lunar Days (A)	Solar Days (B)	Yuga-End Offset (C)**	Adj. Yuga-End Offset (C-1.36)**
18	1113	32,867.54	32,871.87	-4.33	-5.66
19	1175	34,698.44	34,698.09	0.36	-0.97
20	1237	36,529.34	36,524.30	5.04	3.71
21	1299	38,360.23	38,350.52	9.72	8.39
22	1361	40,191.13	40,176.73	14.4	13.07
23	1423	42,022.03	42,002.95	19.08	17.76
24	1484	43,823.39	43,829.16	-5.77	-7.09

** Yuga-End Offset (C) = Lunar Days (A) – Solar Days (B); Adjusted Yuga-End Offset (Adj. C) = Yuga-End Offset (C) - 1.36 (Initial Diff. of New Moon Point)

Table 1.24
Yuga-End Offsets of First *Mahā-Yuga*

The Offsets for some interesting *Mahā-Yugā* are shown below:

<i>Mahā-Yugā</i>	{1}	{5}	{71.75}
<i>Yugā</i> (24 x <i>Mahā-Yuga</i>)	24	120	1,722
Solstitial Years (Actual Days) (A)	120	600	8610
	(43,829.16)	(219,145.80)	(3,144,742.23)
I. Normal Lunar Months (60 per <i>Yugā</i>)	1,440	7,200	103,320
II. Ādhika Lunar Months (02 per <i>Yuga</i>)	48	240	3,444
III. <i>Kṣaya</i> Lunar Months (every 6 th <i>Yuga</i>)	-4	-20	-287
IV. Ādhika Lunar Month (middle of 120 th <i>Yuga</i>) – At Odd Multiples of 60	0	1	14
Ending Lunar Months	1,484	7,421	106,491
Days (29.530 x Ending Lunar Months) (B)	(43,823.393)	(219,146.495)	(3,144,741.868)
Total Offset (B-A)	{-5.767}	{0.695}	{-0.362}

Table 1.25
Yuga-End Offsets for some *Mahā-Yugā* (1, 5 and 71.75)

The mean values of the *Manvantara* Year, the Yuga-End Offsets and the Year-End Offsets can be manually computed as follows:

Manvantara-Year

$$\text{Manvantara-Year}(X) = 4175 - X, \text{ if } X < 1 \text{ CE}$$

$$= 4174 + X; \text{ if } X \geq 1 \text{ CE}$$

Where X is the generally known Gregorian year (BCE or CE), as it exists in its middle, which is adopted to represent a *Samvatsara*. The starting winter solstice of the *Samvatsara* represented by year X may or may not lie within the Gregorian year X.

Note: The counting of the first Year of the present age (*Manvantara*) started on Jan 21, 4174 BCE (a Winter Solstice Day and the day next of a New Moon Day). From the *Mahābhārata* War year of 827 BCE, we get the exact starting date of the present age as Jan 21, 4174 BCE (3360 years before 814 BCE, the first year of 29th *Mahā-Yuga*). In the range (1317-1213 BCE), a generalization can't be formed as the winter solstice kept switching between Dec/31 and Jan/01 randomly.

Yuga and the *Mahā-Yuga* of the Manvantara-Year

$$Y_A = \text{Yuga}(X) = \text{Manvantara-Year}(X) / 5$$

$$Y = \text{CEILING}(Y_A); Y_Y = \text{CEILING}((1 - (Y - Y_A)) / 0.2)$$

$$MY_A = \text{Mahā-Yuga}(X) = \text{Manvantara-Year}(X) / 120$$

$$MY = \text{CEILING}(MY_A); MY_Y = \text{CEILING}((1 - (MY - MY_A)) * 120)$$

Where X = General Year (BCE/CE), Y_A = Actual *Yuga*, Y = *Yuga* No., Y_Y = *Yuga* Year, MY_A = Actual *Mahā-Yuga*, MY = *Mahā-Yuga* No., MY_Y = *Mahā-Yuga* Year

Yuga-End Offset and Year-End Offsets

$$\text{Adjustment}(Y) = Q(Y/6) - Q(Y/60) + Q(Y/120) \quad [\text{Q = Quotient}]$$

$$\text{Month-Correction}(Y) = \text{Adjustment}(Y) - \text{Adjustment}(Y-1); \in \{0, 1\}$$

$$\text{Ending Months}(Y) = 62 * Y - \text{Adjustment}(Y)$$

$$\text{Yuga Months}(Y) = 62 - \text{Month-Correction}(Y)$$

$$\begin{aligned} \text{Yuga-End Offset}(Y) = & Y * 4.681440675 - \text{Adjustment}(Y) * 29.5305882 \\ & + Y * 0.001472283 - 1.357527433 \end{aligned}$$

$$\begin{aligned} \text{Year-End Offset}(Y,1) = & \text{Yuga-End Offset}(Y) - 15.55741 \\ & + \text{Month-Correction}(Y) * 29.5305882 \end{aligned}$$

$$\begin{aligned} \text{Year-End Offset}(Y,2) = & \text{Yuga-End Offset}(Y) - 26.4333516 \\ & + \text{Month-Correction}(Y) * 29.5305882 \end{aligned}$$

$$\begin{aligned} \text{Year-End Offset}(Y,3) = & \text{Yuga-End Offset}(Y) - 7.778705 \\ & + \text{Month-Correction}(Y) * 29.5305882 \end{aligned}$$

$$\begin{aligned} \text{Year-End Offset}(Y,4) = & \text{Yuga-End Offset}(Y) - 18.6546466 \\ & + \text{Month-Correction}(Y) * 29.5305882 \end{aligned}$$

Year-End Offset(Y,5) = Yuga-End Offset(Y)

Note: Error Range for these offsets is [-0.966, 1.148] days from the last new moon point. It should be remembered that we are only working with mean values to allow quick manual computation and since Moon is a fast moving body as well, an error of a day or two is quite likely while calculating over a period of thousands of years. Since these offsets are only meant to point out the near location of the last new moon of the Yuga or the Samvatsara, the actual new moon point (which may be off by a day) should be first ascertained, either through some astro software or programmatically, to be able to realistically compute a calendar. If the New Moon Point lies before a local noon, that day (the one of the local noon) itself is usually the new moon day and the next day becomes the first day of the next Vedic Month.

Table 1.26
Yuga, Mahā-Yuga and the Offsets Formulae

While implementing these rules in software, actual values of the last new moon point and the nearest winter solstice point must be found against the values computed from these formulae. The days from the nearest winter solstice to the end of a Yuga can be computed by the fractional part of the Yuga ($(1-Y_A\%1)*5*365.243$) while the days to approximate date of last new moon can be arrived at by adding in the offset value. The actual last new moon of that Yuga or Samvatsara can then be determined by locating the new moon nearest to its approximate date. The derivation of offset formulae is shown below:

$$\begin{aligned}
 \text{Yuga-End Offset}(Y) &= Y*4.681440675 - \text{Adjustment}(Y)*29.5305882 \\
 &\quad + \text{Yuga-Correction}(Y) + \text{Initial Offset} \\
 &= \mathbf{Y*4.681440675 - Adjustment(Y)*29.5305882} \\
 &\quad + \mathbf{Y*0.001472283 - 1.357527433}
 \end{aligned}$$

Where:

- a) $\text{Yuga-Correction}(Y) = Y*0.001472283 - 0.364016533$ (Empirical value),
- b) Initial Offset = -0.9935109 (New Moon was initially this much behind)

$$\begin{aligned}
 \text{Year-End Offset (Y, 1)} &= \text{Yuga-End Offset(Y)} + (5-1)*365.243005545 \\
 &\quad - (\text{Yuga Months}(Y) - 12)*29.5305882 \\
 &= \text{Yuga-End Offset(Y)} + 1460.972 \\
 &\quad - (62 - \text{Month-Correction}(Y) - 12)*29.5305882 \\
 &= \text{Yuga-End Offset(Y)} - 15.55741 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882
 \end{aligned}$$

$$\begin{aligned}
 \text{Year-End Offset (Y, 2)} &= \text{Year-End Offset}(Y, 1) - 10.8759416 \\
 &= \text{Yuga-End Offset(Y)} - 15.55741 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882 - 10.8759416 \\
 &= \text{Yuga-End Offset(Y)} - 26.4333516 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882
 \end{aligned}$$

$$\begin{aligned}
 \text{Year-End Offset (Y, 3)} &= \text{Year-End Offset}(Y, 2) - 10.8759416 + 29.5305882 \\
 &= \text{Yuga-End Offset(Y)} - 26.4333516 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882 + 18.6546466 \\
 &= \text{Yuga-End Offset(Y)} - 7.778705 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882
 \end{aligned}$$

$$\begin{aligned}
 \text{Year-End Offset (Y, 4)} &= \text{Year-End Offset}(Y, 3) - 10.8759416 \\
 &= \text{Yuga-End Offset(Y)} - 7.778705 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882 - 10.8759416 \\
 &= \text{Yuga-End Offset(Y)} - 18.6546466 \\
 &\quad + \text{Month-Correction}(Y)*29.5305882
 \end{aligned}$$

$$\text{Year-End Offset (Y, 5)} = \text{Yuga-End Offset}(Y)$$

With the start of 1723rd *Yuga*, the entire Yuga-End Offset cycle of 1722 *Yugā* starts repeating just the same as that of previous 1722 *Yugā*, only with an additional offset of -0.362 days between any two corresponding *Yugā* which can be summarized thus:

$$\text{Yuga-End Offset}(Y+1722) = \text{Yuga-End Offset}(Y) - 0.362$$

Table 1.27
Manvantara Offset Formula

As we will see ahead shortly, this cycle of 1722 *Yugā* (1722*5 = 8610 years) is known as a *Manvantara*.

Exercise:**Compute the Yuga, the Mahā-Yuga, the Yuga-End Offset and the Year-End Offsets for the Yuga of year 2017 CE**

Since 2017 CE >= 1 CE, Manvantara-Year(2017) = 2017 + 4174 = 6191

$$Y_A = \text{Yuga}(2017) = \text{Manvantara-Year}(2017) / 5 = 6191/5 = 1238.2$$

$$Y = \text{CEILING}(Y_A) = 1239; Y_Y = \text{CEILING}((1 - (Y - Y_A))/0.2) = 1$$

This means that the year 2017 is the first year of the 1239th Yuga.

$$MY_A = \text{Mahā-Yuga}(2017) = \text{Manvantara-Year}(2017) / 120 = 51.5916$$

$$MY = \text{CEILING}(MY_A) = 52; MY_Y = \text{CEILING}((1 - (MY - MY_A))*120) = 71$$

This means that the year 2017 is 71st Year of the 52nd Mahā-Yuga that started in 1947 (also India's Independence Year). It further means that it's the 23rd Year (71-48) of 52nd Tretā-Yuga and that there are 13 more years (36-23) left for the 52nd Tretā-Yuga to end. So, 52nd Tretā-Yuga will end with the end of year of 2030 AD (2017+13), giving way to 52nd Dvāpara-Yuga.

$$\text{Adjustment}(1239) = Q(1239/6) - Q(1239/60) + Q(1239/120) = 196$$

$$\text{Adjustment}(1238) = Q(1238/6) - Q(1238/60) + Q(1238/120) = 196$$

$$\text{Month-Correction}(1239) = \text{Adjustment}(1239) - \text{Adjustment}(1238) = 0$$

$$\text{Ending Months}(1239) = 62 * 1239 - \text{Adjustment}(1239) = 76,622$$

$$\text{Yuga Months}(1239) = 62 - \text{Month-Correction}(1239) = 62$$

$$\begin{aligned} \text{Yuga-End Offset}(1239) &= 1239 * 4.681440675 \\ &\quad - \text{Adjustment}(1239) * 29.5305882 \\ &\quad + 1239 * 0.001472283 - 1.357527433 = 12.77634 \end{aligned}$$

This means that the last new moon point of 1239th Yuga is about 12.7763 days from the point of its last winter solstice in 2021 (2017+4). This winter solstice point being at 21/Dec/2021 21:29 IST, the last new moon point should be about 03/Jan/2022 16:07 IST. On checking, we find that the new moon point is actually some 16 hours earlier at 03/Jan/2022 00:03 IST. As the new moon point is before the local Noon of the day, this day itself becomes the New Moon day and the day next which is 04/Jan/2022 becomes the first day of the next (1240th) Yuga. If the actual new moon point wasn't checked, we would have been in an error of one lunar day.

Now, since Month-Correction(1239) = 0:

$$\begin{aligned}\text{Year-End Offset}(1239,1) &= \text{Yuga-End Offset}(1239) - 15.55741 \\ &= -2.78106973\end{aligned}$$

$$\begin{aligned}\text{Year-End Offset}(1239,2) &= \text{Yuga-End Offset}(1239) - 26.4333516 \\ &= -13.65701133\end{aligned}$$

$$\begin{aligned}\text{Year-End Offset}(1239,3) &= \text{Yuga-End Offset}(1239) - 7.778705 \\ &= 4.99763527\end{aligned}$$

$$\begin{aligned}\text{Year-End Offset}(1239,4) &= \text{Yuga-End Offset}(1239) - 18.6546466 \\ &= -5.87830633\end{aligned}$$

$$\begin{aligned}\text{Year-End Offset}(1239,5) &= \text{Yuga-End Offset}(1239) \\ &= 12.77634027\end{aligned}$$

The ending Winter-Solstice of the 5 years of 1239th Yuga are: [21.12.2017 21:58, 22.12.2018 03:53, 22.12.2019 09:49, 21.12.2020 15:32, 21.12.2021 21:29]. Applying the above-computed 5 offsets to these, we get the mean New Moon Points as [19.12.2017 3:13, 08.12.2018 12:06, 27.12.2019 9:45, 15.12.2020 18:27, 03.01.2022 16:07]. The actual New Moon Points that lie just next to these values are the ending NMPs of the 5 years of 1239th Yuga.

Table 1.28

Exercise to Calculate Yuga, Mahā-Yuga and Yuga-End Offset

9.1 Nakṣatra Calculation

The near-exact mean value of the *Nakṣatra* present on any given day can be calculated as given below, if the local Julian Day Number (JDN) starting at the midday of that day be known to us:

- 1) Find the no. of elapsed days up to the midday of a given date since the midday of Jan 21, 4174 BCE (JDN: 196,890).
- 2) Divide **Elapsed Days (ED)** by 27.321661, multiply the remainder by 27 and subtract 3.887892 to get the result. **If negative, add 27.**
- 3) The result indicates the total *Nakṣatrā* traversed by Moon from the start of very first *Nakṣatra*, the *Kṛttikā Nakṣatra*.

Formula: “=MOD((ED)/27.321661,1)*27-3.887892”

Note: These refer the correct *Nakṣatra* Zodiac (*Aśvinī* 3°20' = Aries 0°).

Table 1.29

Nakṣatra Calculation for a Date

Now, the elapsed days can also be counted by the “Ending Months” formula but it’s much simpler to calculate them by the JDN difference. These formulae from scienceworld.wolfram.com, localized for India (GMT+5.5), can be used to get the JDN starting at the midday of a given date (Y: Year, M: Month, D: Day):

A) For BCE / CE dates before Oct 15, 1582 CE	Note: Here, $\text{INT}(X)$ = Integer Value of X; The Floor
$\text{“} = 367 * Y - \text{INT}(7 * (Y + 5001 + \text{INT}((M-9)/7)) / 4) + \text{INT}(275 * M / 9) + D + 1729775.5 + (-5.5 / 24) \text{”}$	
B) For dates after Oct 15, 1582 CE	$\text{“} = 367 * Y - \text{INT}(7 * (Y + \text{INT}((M+9)/12)) / 4) - \text{INT}(3 * (\text{INT}((Y+(M-9)/7) / 100) + 1) / 4) + \text{INT}(275 * M / 9) + D + 1721029 \text{”}$
Note: For BCE dates, the mathematical year is one less and negative, e.g., 1331 BCE equals -1330, 894 BCE equals -893 and so on.	

Table 1.30
JDN Calculation for a Date

Exercise:	
Find the Elapsed Days for the following dates at their Midday Points and the mean values of the Nakṣatra prevailing then.	
<i>Manvantara Start</i> Jan 21, 4174 BCE 21.01.-4173 12:02:40 IST	Putting $Y = -4173$, $M = 1$, $D = 21$ in Formula A from above table, we get $\text{JDN} = 196,890$ Elapsed-Days = $196890 - 196890 = 0$ Nakṣatra = 23.112108 [Uttarā Bhādrā Q1]
<i>Rāma's B'day</i> Apr 07, 1331 BCE 07.04.-1330 12:05:21 IST	Putting $Y = -1330$, $M = 4$, $D = 7$ in Formula A from above table, we get $\text{JDN} = 1,235,372$ Elapsed-Days = $1235372 - 196890 = 1,038,482$ Nakṣatra = 8.946261 [Purvā Phalgunī Q4]
<i>Kṛṣṇa's B'day</i> Jul 18, 894 BCE 18.07.-893 00:52:43 IST	As Kṛṣṇa was born at midnight, $D = 17$, not 18. Putting $Y = -893$, $M = 7$, $D = 17$ in Formula A from above table, we get $\text{JDN} = 1,395,087$ Elapsed-Days = $1395087 - 196890 = 1,198,197$ Nakṣatra = 1.603532 [Rohiṇī Q3]

<i>Buddha's B'day</i> Apr 12, 563 BCE 12.04.-562 12:12:51 IST	Putting Y= -562, M = 4, D = 12 in Formula A from above table, we get JDN = 1,515,889 Elapsed-Days = 1515889-196890 = 1,318,999 Nakṣatra = 14.387945 [<i>Anurādhā</i> Q3]
<i>Buddha's Nirvāṇa Day</i> Mar 29, 483 BCE 29.03.-482 12:00:28 IST	Putting Y= -482, M = 3, D = 29 in Formula A from above table, we get JDN = 1,545,095 Elapsed-Days = 1545095-196890 = 1,348,205 Nakṣatra = 13.542409 [<i>Viśākhā</i> Q3]
<i>Harṣavardhana's B'day</i> May 30, 577 CE 30.05.577 19:30:00 IST	Putting Y= 577, M = 5, D = 30 in Formula A from above table, we get JDN = 1,931,957 Elapsed-Days = 1931957-196890 = 1,735,067 Nakṣatra = 1.240045 [<i>Rohiṇī</i> Q1]
<i>Śrāvanya S01 (2017)</i> Jun 25, 2017 CE 25.06.2017 12:00:00 IST	Putting Y= 2017, M = 6, D = 25 in Formula B from above table, we get JDN = 2,457,930 Elapsed-Days = 2457930-196890 = 2,261,040 Nakṣatra = 4.632881 [<i>Punarvasu</i> Q1]
Note: These are mean values with an error margin of one Nakṣatra, as the Moon doesn't follow a perfectly circular path and its speed varies. When these are checked against the actual values as given by Swiss Ephemeris, they will be correct 95% of the time. From above, it can be noticed that the computed Nakṣatra on the midday of <i>Buddha's b'day</i> (<i>Anurādhā</i> Q3) is in an error of ¾ Nakṣatra when compared with the Swiss Ephemeris value (<i>Viśākhā</i> Q4). Even for <i>Harṣavardhana</i> , it should be <i>Kṛttikā</i> . For others, the error is limited to a Nakṣatra quarter or two.	

Table 1.31
Elapsed Days and Nakṣatra Calculation Exercise

With such calculations, all ancient dates can be quickly corroborated without reliance on speciality software. The Nakṣatra of a day is the one that is present at local midday but this rule applies only at the start of a new *Pakṣa* (lunar fortnight) where after the Nakṣatrā are counted serially until the start of following *Pakṣa*. So, a Nakṣatra result like 3.95 or 4.05 at local noon, in the middle of a *Pakṣa*, can be ignored and the Nakṣatra on that day may be counted serially from the one on the first day of that *Pakṣa*. The local noons of a reference city may be used for calculations.

9.2 Month Calculation

In the Vedic calendar, the bright fortnight (*Śukla Pakṣa*) always starts the month, the Full Moon Day (*Pūrṇimā / Paurṇamāśī*) comes in the middle and the dark fortnight (*Kṛṣṇa Pakṣa*) ends it with the New Moon Day (*Amāvasyā*). The Full Moon Day always comes after the night of “Full Moon” (Full Moon Point, FMP). Likewise, the New Moon Day always comes after the night of “New Moon” (New Moon Point, NMP). If a NMP falls before the midday, that day itself is the New Moon Day else the next day is the New Moon Day. If a FMP (Full Moon Point) falls before the midday, that day itself is the Full Moon Day else the next day is the Full Moon Day. The first *Tithi* of *Śukla Pakṣa* (S01) always begins with the day next to a New Moon Day and the first *Tithi* of *Kṛṣṇa Pakṣa* (K01) always begins with the day next to a Full Moon Day. A new *Tithi* begins at and ends at the completion of sunrise.

As we will also read in the next chapter, the ancient Egyptians and Mesopotamians also used the Vedic Lunar Calendar and not any Solar Calendar. The rules of intercalation, as also the intercalated months, were also exactly the same as those of the Vedic Calendar. The only minor differences were that these civilizations took the New Moon Day to be the first day of month, counted the days from 1-30 without dividing the month in two halves and their method of reckoning the New Moon Day was a visibility of the faintest crescent of Moon just after the sunset.

9.3 *Mahā-Yuga & Yuga Tables*

The pre-computed tables of the starting NMPs (New Moon Points) of all the *Mahā-Yugā* and *Yugā* of the present 7th *Manvantara* are provided in Appendix B. These have been worked out as per the rules of Vedic calendar stated previously. The first day of a *Yuga*/Year/Month can be worked out from these starting NMPs. The FMPs may be known by adding 14.7652941 (29.5305882/2) to their preceding NMPs. All the dates in these

tables are Proleptic Gregorian before Oct 15, 1582 and Gregorian in the later times of Gregorian calendar. But to check any of Proleptic Gregorian dates in the *Jagannātha Horā (JHora)* software⁷⁷, use the “Julian” option against the date and use the mathematical values (negative) for BCE years. For example, the year 1331 BCE equals “-1330” and the year 827 BCE equals “-826”; this is so because after 1 BCE, there was directly 1 CE/AD.

In these tables, the starting NMPs of the *Yugā* are listed in a 6x4 matrix under their respective *Mahā-Yugā* as a *Mahā-Yuga* always has 24 *Yugā*. All the *Yugā* indicated in first 5 columns (A-E) are of 62 lunar months each, with a 12, 12, 13, 12, 13 split for the 05 *Samvatsarā* (years) of a *Yuga*, whereas those indicated in the 6th and last column (F) are of 61 lunar months each, except where specifically mentioned to be of 62 months. A normal *Yuga* is of 62 months and always has the intercalary month of *Pauṣa (Ādhika)* at the end of its 5th year which gets dropped in a *Yuga* of 61 months. These tables also stand good for finding the ancient Egyptian and Mesopotamian months.

For example, notice the value of 18th *Yuga* of the first *Mahā-Yuga*, falling under the 6th column and the 3rd row, in the very first table of Appendix B. Firstly, this means that the 18th *Yuga* was of 61 months and not of regular 62 months. Secondly, the starting NMP of this 18th *Yuga* is listed as “10.02.-4088 11:00:13 IST”. As the NMP fell before the local midday, this day itself (Feb 10, 4089 BCE) was the New Moon Day and the last day of the preceding *Yuga*. As the *Yuga*, Year and Month all begin with a day next to a New Moon Day, this 18th *Yuga* began with the sunrise of Feb 11, 4089 BCE. Similarly, all other values may be interpreted.

⁷⁷ Like mentioned earlier, presently the *JHora* can be configured correctly only for the *Nakṣatra* Zodiac and *Nakṣatra Daśā* part by setting the Vedic *Ayanāṁśa*. Any 12-Sign Zodiac longitudes that it presently gives, after setting the Vedic *Ayanāṁśa*, should be subtracted by 3°20' to get their true positions in the 12-Sign Zodiac; this includes the Ascendent.

Since the Indians are victims of the *Kali-Yuga* ghost for past 2500 years or so, most of them will fail to understand this most scientific and mathematical explanation of the *Mahā-Yuga* cycle. Some blind-followers of Āryabhaṭṭa would continue to believe and assert that a *Mahā-Yuga* should have 4,320,000 years and a *Kali-Yuga* 432,000 years. They will also quote the mistranslated Vedic texts to support the time span of a *Kali-Yuga* being of 432,000 years, rather than of 12 years, its actual value. Some others, by an extension of the same fault, will quote Brahmā's life as trillions of years, even while knowing fully-well that the present universe itself is not older than 14-15 billion years. It should be known that the truth, once exposed for real, has a habit of shining by itself.

10. Indian Eras

Summarized below are the Epoch years of some common Indian Eras (*Samvat*) that are explained, along with their associated histories, in the next chapter:

No.	Indian Eras (<i>Samvat</i>)	Epoch Year
1	<i>Kṛta / Mālava</i>	94 BCE (-93)
2	(Incorrect) <i>Vikrama</i>	57 BCE (-56)
3	<i>Śaka</i>	78 CE
4	<i>Kalacurī</i>	249 CE
5	<i>Kali</i> (<i>Vṛddha Garga, Ujjain</i>) in 252 CE	2448 BCE (-2447)
6	<i>Gupta / Vallabhī</i>	319 CE
7	<i>Kali</i> (<i>Āryabhaṭṭa</i>) in 499 CE	3102 BCE (-3101)
8	<i>Lāṭadeva</i> Era (of <i>Sūrya Siddhānta</i>)	505 CE
9	(Corrected / True) <i>Vikrama</i>	598 CE
10	<i>Aṃśuvarman</i> in 607 CE (SS.529)	578 CE
11	<i>Kollam</i>	825 CE
12	<i>Newari / Nepālī</i>	879 CE

Table 1.32
Epoch years of some common Indian Eras

Chapter 2

Timeline of World History

*Vedic India, Indus Valley, Egypt,
Mesopotamia, Hebrews of Bible*

1. Introduction

The aim of this chapter is not to delineate the entire history of world but only to establish its timeline by analyzing the histories and genealogies of the most ancient civilizations such as that of Vedic India, Indus Valley, Egypt and Mesopotamia. The Biblical history has also been analyzed. Other civilizations, such as the Hittites and the Chinese, that developed later, have been left out.

For the purpose of simplifying the historical analysis and achieving some objectivity across the different genealogies of various civilizations, the time from Jan 21, 4174 BCE (the first mathematical point of the present 7th age) onwards has been broken down in fixed time-generations of 29 years wherein we then allot the genealogies. As there were ~17.5 generations⁷⁸ from the birth of *Rāma* (1331 BCE) to the time of *Mahābhārata* war (827 BCE), we get the average generation time as about 29 years [(1331-827)/17.5]. It's also a common observation that, by and large, the father is about 58 years old when the son is 29 years old. Thus the period of 29 years (half of 58, the average age of retirement in India), has been determined to be quite accurate in representing the time of start of a new generation. These time-generations allow us to map out the genealogies quite accurately once any one fixed point of a patriarchal genealogy is known with some certainty. Now, the personal time-generation, hereafter referred to as 'personal generation', of a person starts with his 30th year. While a king may have ascended in his 15th year or 20th year, his personal generation time always starts with his 30th year. But as the time-generations are fixed points in time, the starts of a time-generation and a personal-generation do not always match when we try to allocate the genealogies in these time-generations. This is perfectly okay with us as our aim is only to achieve a broad placement of the genealogies, with a resolution of 1 time-generation, when their accurate years are not known. This also

⁷⁸ As per genealogies of Lunar/Solar Races provided in the *Matsya Purāna*

makes the actual reign period of a king secondary to his personal generation time that starts with his 30th year. So, whether a king ascended at 15 years of age or at 50 years of age, his personal generation time would run out by his 58th year. This type of historical analysis is highly successful for not only the Indian genealogies that are largely patriarchal (father-son type succession) but also for the western genealogies, as you will notice ahead. In the most Indian histories, the ruling king was mostly succeeded either by the son or by the grandson, in an unbroken succession. It's also known from the *Rāmāyaṇa* and *Mahābhārata* texts that the eldest prince was anointed as crown-prince roughly about 17-21 years⁷⁹ of age on an average. So, the eldest prince would usually become the crown-prince at 19 years and serve for 10 years before succeeding as the king, where after he would rule another 29 years as the (proper) king before retiring⁸⁰ to the forest at 58/60 years of age towards attainment of the fourth objective of life. There have been instances where some kings ruled for two generations, one their own and another of their sons, and retired to forest in extreme old age or died while on the throne. But, in all these cases, they were invariably succeeded by their grandsons, like *Yudhiṣṭhīra* finally retired at 86 years⁸¹ of age, crowning his 16 year old grandson *Parīkṣit*. As *Yudhiṣṭhīra* ruled for a total of 65 years (86-21, leaving aside the exile period), it can be said that he ascended 7 years before his generation time and ruled for 2 generations ($65=7+29+29$). There are also instances where the kings died much before attaining 58 years of age but then their sons naturally ruled longer than 29 years thus making up for the reign

⁷⁹ From *Rāmāyaṇa*, we know *Rāma* was to be anointed the crown-prince in his 18th year. From *Mahābhārata*, we know that *Yudhiṣṭhīra* was anointed in his 21st year, a time when *Arjuna* was in his 17th year.

⁸⁰ The conduct of Vedic kings was guided by the four-fold *Sanātana Dharma* that calls for retirement in old age for the attainment of the 4th objective of life, that of *Mokṣa* - the liberation, through meditation.

⁸¹ *Yudhiṣṭhīra* was 69 years old at the time of war, as he was 3 years elder to *Arjuna*, who was then 66 years old. This is explained in the chapter on *Mahābhārata*.

time lost by the father. Thus, a ‘generation’ as being of about 28-30 years is quite logical but its exact average value of 29 years has been decided by trial and error. In the western genealogies, where some unrelated rulers succeeded by deposing one another, it becomes a little difficult to allot them to time-generations due to uncertain nature of succession but not impossible as the known reign years come in handy. Consider a sample patriarchal genealogy mapped to the fixed time-generations:

Gen	Year	Lunar Line	Solar Line
114	-896	Pāndu	Viśvabhava
115	-867	<i>Yudhiṣṭhīra</i> (65Y) (w) Draupadī (b) Arjuna (cb) Kṛṣṇa (cb) Duryodhana+ <i>Yudhiṣṭhīra</i> +	Bṛhadbala (n) died old in the Mahābhārata war of 827 BCE (cb) Śrutāyu
116	-838	... (<i>Yudhiṣṭhīra</i>)	Bṛhadkṣaya / Urukṣaya
117	-809	<i>Parīkṣit</i> + (gf) Arjuna (f) Abhimanyu	Kṣaya

Legend

Sign	Meaning	Sign	Meaning	Sign	Meaning
X	Unknown	(h/w)	Husband/Wife	(fil)	Father-in-law
+	Change of Lineage	(s/d)	Son/Daughter	(sil)	Son-in-law
...	Continuation	(b/sis)	Brother/Sister	(bil)	Brother-in-law
?	Existence Uncertain	(m/f)	Mother/Father	(hb)	Half-Brother
{}	Time Uncertain	(gf)	Grand-Father	(cb)	Cousin-Brother
(c)	Contemporary	(65Y)	Reigned 65 Yrs.	(an)	Ancestor
(ec)	Early Contemporary	(n)	Note	(ds)	Descendent
(lc)	Later Contemporary	(fd)	Feudatory	+INT	Interjected (List)

Table 2.1
Sample Genealogical Table

Here, the first column (“Gen”) represents the fixed time-generation and the second column (“Year”) shows its beginning year. It can be seen that the Gen. 115, counting from 4174 BCE (-4173), started in 868 BCE [-867 = -4173+29*(115-1)]. It can also be

seen that *Yudhiṣṭhīra* is allotted to Gen.115. As *Yudhiṣṭhīra* ruled for over two generations (one his and another of his sons) and was succeeded by *Parīkṣit*, the grandson of his brother *Arjuna*, *Parīkṣit* is allotted to Gen.117. As *Parīkṣit* was not a son of *Yudhiṣṭhīra*, his name is suffixed with a plus ('+') indicating a change from natural genealogical succession. Within the original generation of *Yudhiṣṭhīra* (Gen.115, 868 BCE), it can be seen that he lost his kingdom to his cousin brother *Duryodhana*, represented by '(cb) *Duryodhana'*, and then gained it back. The generation next of him (Gen.116, 839 BCE), is marked by the continuation sign ('...') indicating the continuity of his reign in that generation. As *Yudhiṣṭhīra* must have been about 29 years at the start of his time-generation, he must have been born roughly about the start of previous time-generation (897 BCE). As king *Pāndu* was the father of *Yudhiṣṭhīra*, he is allotted to Gen.114 (897 BCE). So, while the year of a time-generation roughly indicates the 30th year of a king, it also is the time of birth of his natural successor. As long as we know the genealogical relation between any two successive kings, the genealogies can be worked out over thousands of years with much accuracy, especially so for the patriarchal genealogies.

2. Timeline of Indian History

The timeline of Indian history (of mostly patriarchal generations) is marked by the following major milestones:

1. *Svayambhuva Manu*, at its start (3391 BCE)
2. *Vaivasvat Manu*, 21st generation from *Svayambhuva Manu*, just after a great deluge (2811 BCE)
3. *Rāma* of Solar Line (1331-1268 BCE), from the *Rāmāyaṇa*
4. *Kṛṣṇa* (894-810 BCE) of Lunar Line, from the *Mahābhārata*
5. *Udayana* and *Buddha* (563-482/3 BCE) in the Magadha Period
6. *Candragupta Maurya* (321 BCE)
7. *Candragupta II (Kalki Avatāra)* (~380 CE)
8. *Harṣa Vardhana Vikramāditya* (577-647 CE)

2.1 Indus Valley Civilization

Just so the Indian history is understood in the right archaeological context as well, let's first analyze the timeline of the Harappan civilization or the Indus valley civilization (IVC) that prospered in the region of seven rivers (*Sapta-Saindhava, Sapta-Sindhu*) about the *Sindhu* River (Indus) as also along the banks of the now-dried-up *Sarasvatī* River (Ghaggar-Hakra). All these sites are on the north-western frontiers of modern-day India. Starting with the sites of Harappa (1921) and Mohan-Jo-Daro (1922), about a 1000 of these IVC sites have been excavated till now and various artifacts found. Some of the popular IVC sites are those of Harappa, Mohan-Jo-Daro, Kali Bangan, Dholavira, Lothal, Rakhi Garhi etc. as shown in the table given below:

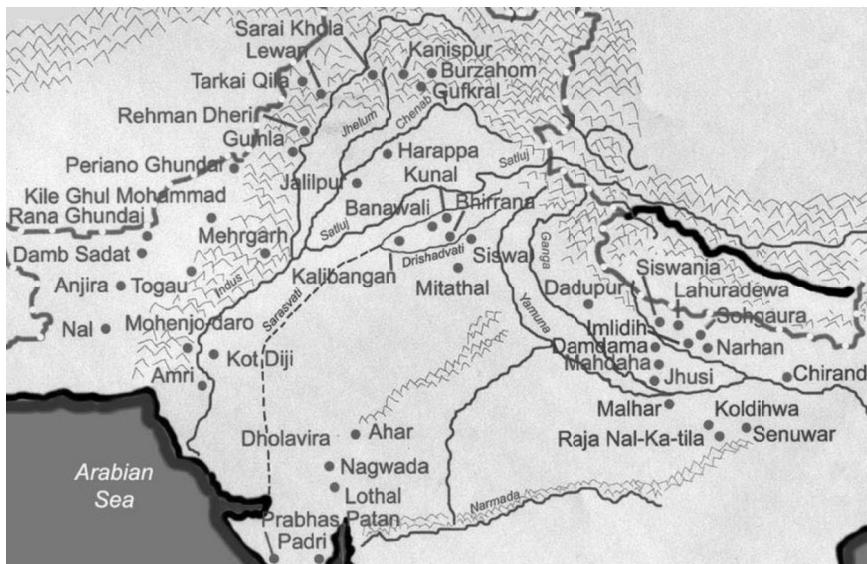


Figure 2.1
Indus Valley Civilization (IVC) Sites

Earlier the urban/mature phases of most IVC sites were dated about 3250-2750 BCE based on their cross-cultural references with Mesopotamian civilization but these were subsequently revised down to 2350-1900 BCE with the revision of Mesopotamian

chronology. With the introduction of Calibrated Radiocarbon Dating (CRD)⁸² technique, these sites were redated scientifically. Robert H. Brunswig (1975)⁸³, using the calibration methods of Ralph and Michael (1972), produced the CRD dates of some of the oldest IVC sites based on their uncalibrated radiocarbon dates:

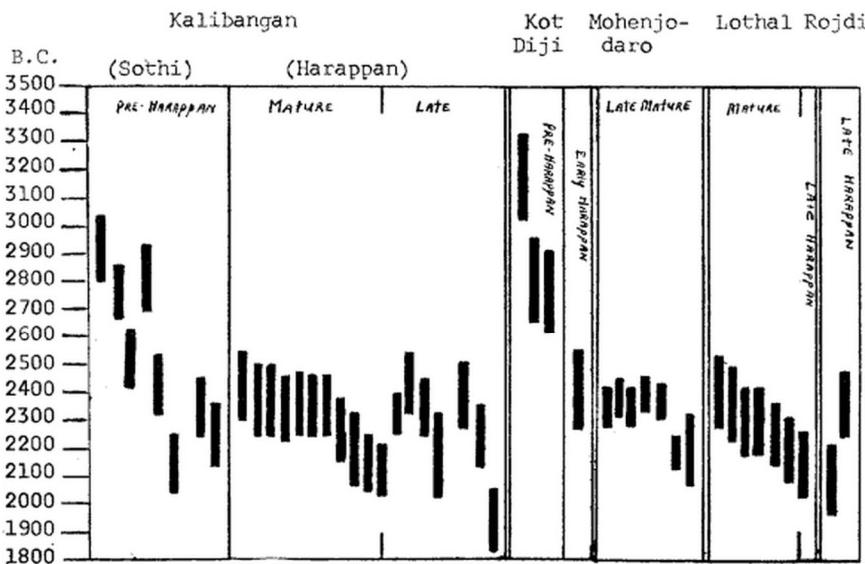


Fig. 3 - Radiocarbon dates calibrated according to RALPH and MICHAEL (1972). (See tab. 1). The above date plots are drawn on the basis of one σ . Individual dates may be read by referring to the site calibration tables and reading them from the early dates to later dates, and comparing them with the left to right range plots of the above table.

Table 2.2

Indus Valley Civilization (IVC) Sites – Calibrated Radiocarbon Dates

Here, it can be noticed that only the site of Kot-Diji seems to have first occupation dates (CRD) at 3300 BCE and is the oldest site. The site of Sothi shows first occupation about 3000 BCE, whereas the most other sites show first occupation only about 2600 BCE.

⁸² In the 1950s, the technique of Radiocarbon Dating (RD) was introduced but its readings were not very accurate despite having a sound scientific basis. So, its readings were recalibrated as per Dendrochronology and this revised technique came to be known as Calibrated Radiocarbon Dating (CRD) which is fairly accurate in the interpretation of RD dates.

⁸³ "Radiocarbon Dating and the Indus Civilization: Calibration and Chronology", *East and West*, Vol. 25, No. 1/2 (Mar-Jun 1975), pp. 111-145

After an analysis of various CRD dates arrived at similarly by different recalibration methods, a broad consensus now exists on the timeline of IVC sites which has been divided in 3 major periods with 2-3 phases for each period, as shown in the table below. Listed alongside these phases are some contemporaneous kings of Solar (C) and Lunar (D, of *Puru*) lineages.

No	IVC Period	Contemporaneous Kings
0	Pre-Harappan Period (7000-3300 BCE)	
0.1	Mehrgarh I (Aceramic Neolithic) (7000-5500 BCE)	-
0.2	Mehrgarh II-VI (Ceramic Neolithic) (5500-3300 BCE)	-
1	Early-Harappan Period (3300-2800 BCE)	
1.1	Phase 1 (3300-2800 BCE) [Ravi Phase / Hakra Ware]	<i>Svayambhuva Manu</i> (28A, 3391 BCE) <i>Agnidhra</i> (30A, 3333 BCE) (b) <i>Uttama, Tāmasa, Raivata</i> (3 Manu) <i>Nābhi</i> (31A, 3304 BCE)
1.2	Phase 2 (2800-2600 BCE) [Kot Diji Phase, Nausharo I, Mehrgarh VII]	<i>Vaivasvat Manu</i> (48A/C, 2811 BCE)
2	Mature-Harappan Period (2600-1900 BCE)	
2.1	Phase 3A (2600-2450 BCE)	<i>Puru</i> (54E, 2637 BCE) (b) <i>Yadu, Turvasu, Druhyu, Anu</i>
2.2	Phase 3B (2450-2200 BCE)	-
2.3	Phase 3C (2200-1900 BCE)	<i>Māndhātā</i> (67C, 2260 BCE) <i>Bharata</i> (69E, 2202 BCE)
3	Late-Harappan Period (1900-1300 BCE)	
3.1	Phase 4 (1900-1700 BCE)	<i>Sagara</i> (79C, 1912 BCE)
3.2	Phase 5 (1700-1300 BCE)	<i>Hasti</i> (88P, 1651 BCE)
3	Post-Harappan Period (1300-300 BCE)	
	Iron Age	<i>Divodāsa</i> (99P, 1332 BCE) <i>Rāma</i> (100C, 1303 BCE)

Table 2.3
Indus Valley Civilization (IVC) Periods

It can be noticed that the times of these *Cakravartī* (all-conquering) kings fall about the start/end of these various phases. These times have been worked out independently by genealogical back-calculation from the time of *Rāma* (Gen.100, 1302 BCE), as discussed in detail the following sections.

The very first center of Early Vedic Civilization, starting with *Svayambhuva Manu* (28A, 3391 BCE), was the Haridwar / Rishikesh / Gangotri region of today, the Harappan civilization flourished right next to it, in its west. Many descendants of *Svayambhuva Manu* moved out to settle variously, some becoming the first inhabitants of these intermediate regions of Indus (*Sapta-Saindhava*) while the others moving on still farther towards the lands of Central Asia & Egypt. Twenty generations later, from after the deluge (~2820 BCE) in the time of *Vaivasvat Manu* (48A/C, 2811 BCE), the Early Vedic Civilization shifted to *Ayodhyā* on the south bank of *Sarayū* River. These descendants of *Vaivasvat Manu* came to be called the *Mānavā* or the *Manuṣyā*, as also the *Āryā*. The civilization of the Vedic gods, the uncles of *Vaivasvat Manu*, continued to flourish in its original Himalayan region and that of the *Asurā*, the cousins of gods, took roots in the Indus region. With progress of time, as some *Ārya* tribes, mostly the ones expelled from the Vedic order, migrated to the North-western regions of India, they came to be known variously as the *Yavanā*, *Mlecchā*, *Śakā*, *Pāradā*, *Kambojā* and *Pahlavā*.

Now, the time of *Svayambhuva Manu* precedes the start of Phase 1 (3300 BCE) of the Early-Harappan Period by nearly 90 years (~3 generations). This is consistent with the theory of Vedic texts that the *Svayambhuva Manu* was the first known human, as also with my sub-theory that the IVC, the Egyptian and the Mesopotamian civilizations are offshoots of the early Vedic Indian civilization. It's mentioned in the *Purāṇā* that *Uttama*, *Tāmasa* and *Raivata*, the sons of *Priyavrata* and the grandsons of *Svayambhuva Manu*, became 3 *Manu* in their own lands. As their time (Gen.30, 3333 BCE) is nearly coincident with start of Phase 1 and their original

location not far-off from Phase 1 sites, it wouldn't be far-fetched to assume that Phase 1 got started with the tribes of these 3 *Manu* (*Uttama*, *Tāmasa* and *Raivata*). Their brother *Agnidhra*, and his son *Nābhi* (31A, 3304 BCE), continued the original lineage.

Next, the end of Phase 1 (3300-2800 BCE) is coincident with the time of *Vaivasvat Manu* (2811 BCE). As it's known that a 'global' deluge (~2820 BCE) occurred in the early youth of *Vaivasvat Manu*, the Phase 1 was most likely ended by a deluge. The time of this 'global' deluge is confirmed by a flood zone, dated ~2800 BCE, found in Mesopotamian excavations that were conducted in 1922 at Ur in Mesopotamia by Leonard Wooley. The excavations revealed an 8-feet layer of silt and clay, consistent with the sediment of the Euphrates River.

Further, the start of Phase 3A (2600-2450 BCE) is coincident with the westward relocation of some brothers (*Yadu*, *Turvasu*, *Druhyu*, *Anu*) of king *Puru* (54E, 2637 BCE) from their original kingdom at *Pratiṣṭhāna* (modern-day Jhunsi, Allahabad). While *Yadu* seems to have settled in the Mathura region, *Turvasu*, *Druhyu* and *Anu* settled in still farther western regions, possibly displacing the people of Phase 2 sites as a result thereof, and from them emerged the tribes of *Yavanā*, *Mlecchā* and *Śakā*. These brothers had relocated after being cursed by their father, the king *Yayāti*⁸⁴.

⁸⁴ King *Yayāti* had aged prematurely under a curse from his father-in-law who said that he could be youthful again for some time but only if someone else agreed to swap his youth for his old-age. So, king *Yayāti* asked his 5 sons (*Yadu*, *Turvasu*, *Druhyu*, *Anu* and *Puru*) turn-by-turn if they would swap their youth with his old-age for 10 years. None, except *Puru*, the junior-most son, agreed to this at which *Yayāti* cursed the first 4 sons variously and provided the kingdom to *Puru* at the expiry of 10 years who carried forward the Lunar lineage at *Pratiṣṭhāna*. From *Yadu* sprang the *Yādavā*, from *Turvasu* the *Yavanā*, from *Druhyu* the *Bhojā* & *Gāndhārā* and from *Anu* the *Mlecchā*.

Then, the end of Phase 3B (2450-2200 BCE) is coincident with the times of *Māndhātā* (67C, 2260 BCE) of *Ayodhyā* and *Bharata* (69E, 2202 BCE) of *Pratiṣṭhāna*. *Māndhātā* was a great conqueror who is said to have subdued all kings of *Āryāvarta* and its bordering regions. He also killed *Aṅgārasetu*, the king of *Āraṭṭa* (Afghanistan) who was a descendent of *Druhyu* (Gen.54, 2637 BCE) and the father of *Gandhāra*. *Bharata*, the son of king *Duṣyanta* and *Śakuntalā*, was also an all-conquering king and *Sarvadamana* [lit. "The destroyer of all (enemies)"] was his famous title.

Similarly, the Phase 3C (2200-1900 BCE) ended with the time of *Sagara* (Gen.79, 1912 BCE) of *Ayodhyā*. It's known that *Sagara*, the great-grandson of king *Hariścandra*, was an all-round conqueror (*Cakravartī*) and, amongst other such kings of Solar lineage, he was second perhaps only to *Māndhātā*. *Sagara* had marched to the north-western frontiers of India (*Sapta-Saindhava* Region) and defeated the tribes of *Śakā*, *Yavanā*, *Pāradā*, *Kambojā* and *Pahlavā* that resided in these areas, having undertaken an oath of killing them all⁸⁵. These defeated tribes found refuge at the feet of *Sagara*'s family guru *Vasiṣṭha* and pleaded for their lives to be spared. *Vasiṣṭha* granted them assurance of their lives but, for this bestowal of mercy, death-like conditions were imposed on them

⁸⁵ The kingdom of his father *Bāhu* was usurped by the *Haihayā* who had teamed up with these tribes to defeat him. *Bāhu* had entered the forest on being defeated and, soon thereafter, he died leaving behind one of his two wives pregnant with *Sagara*. *Sagara*'s mother *Kālindī* was poisoned by the other jealous wife who encouraged her to enter the pyre of *Bāhu*, as was the Vedic custom. Just as *Kālindī* was to ascend the pyre, she was prevented by the sage *Aurva* who, noticing her pregnancy, neutralized the poison and provided her shelter in his hermitage. The boy *Sagara* [lit. "(Born) with poison"] grew up to be a fine man in forest under the tutelage of sage *Aurva* who also imparted him military training and some advanced weaponry. *Sagara* marched back to *Ayodhyā* and decimated the *Haihayā*. After this, he turned to crush the tribes of these *Śakā*, *Yavanā*, *Paradā*, *Kambojā* and *Pahlavā* who were the partners-in-crime of the *Haihayā*.

so that the oath of *Sagara* was fulfilled, at least in the Vedic understanding, if not literally. First, all of them were banned from the *Ārya* religion of the *Vedā* and they couldn't perform any Vedic rites or ceremonies any more. Second, the *Śakā* were to always remain with their heads half-shaved, the *Yavānā* and *Kambojā* were to remain with fully-shaved heads, the *Pāradā* were to remain without any hair on their face or heads and the *Pahlavā* were to remain with full beards and probably also with shaved heads⁸⁶.

Further, the end of Phase 4 (1900-1700 BCE), which is also the time of Max Muller's most-erroneous AIT⁸⁷ theory, is nearly coincident with the time of king *Hasti*, who founded *Hastināpura* by the side of river *Gaṅgā* in north India. The end of Phase 4 is marked by sudden large-scale desertions. Now, it is my conjecture that perhaps the ancestors of *Hasti* dwelt in these settlements and, with *Hasti*'s relocation to *Hastināpura*, these settlements were deserted. An archaeological linkage between these sites and that of *Hastināpura* may be able to confirm this. But, here also arises the question as to why, if at all, some kings of Lunar lineage would be settled in Indus valley abandoning their original region of *Pratiṣṭhāna*. Firstly, as we will notice in the genealogies, there is a

⁸⁶ ततः शकान्स यवनान्कांबोजान्पारदांस्तथा ।

पहलवांश्चैव निःशेषान्कर्तुं व्यवसितो नृपः ॥ BDP 2.63.134

ते हन्यमाना वीरेण सगरेण महात्मना ।

वसिष्ठं शरणं सर्वे संप्राप्ताः शरणैषिणः ॥ BDP 2.63.135

वसिष्ठो वीक्ष्य तान्युक्तान्विनयोन महामुनिः ।

सगरं वारयामास तेषां दत्त्वाभयं तथा ॥ BDP 2.63.136

सगरः स्वां प्रतिज्ञां च गुरोर्वाक्यं निशम्य च ।

जघान धर्मं वै तेषां वेषान्यत्वं चकार ह ॥ BDP 2.63.137

अर्द्धं शाकानां शिरसो मुण्डयित्वा व्यसर्जयत् ।

यवनानां शिरः सर्वं कांबोजानां तथैव च ॥ BDP 2.63.138

पारदा मुक्तकेशाश्च पहलवाः शमश्रुधारिणः ।

निःस्वाध्यायवप्टकाराः कृतास्तेन महात्मना ॥ BDP 2.63.139

⁸⁷ With Vedic civilization's continual existence from 3391 BCE to 1700 BCE (~58 gens.), what's the basis for a *Ārya* Invasion Theory (AIT)?

gap of 12 generations between *Suhotra* (75E, 2028 BCE) at *Pratiṣṭhāna* and *Hasti* (88P, 1651 BCE) at *Hastināpura*. Secondly, *Suhotra* was an early contemporary (previous generation) of the original *Paraśurāma*. Thirdly, there is an account in the *Purāṇā* that the original *Paraśurāma* had taken a vow to make the Earth devoid of *Kṣatriya* kings 10 times (*Tri-Sapta*, त्रिसप्त, 3+7, not 3*7), subsequent to his enmity with *Kārtaviryārjuna*, a king of Lunar Line, whom he killed in a war. Many kings of the times of the original *Paraśurāma* hid their princes in forests due to his fear. It seems that this oath of the original *Paraśurāma* was enforced by his descendants, the *Paraśurāmā*, in killing or banishing the kings of Lunar lineage from their original region for 10 generations. Banishing a king from his kingdom forever is tantamount to his death in the Vedic Indian understanding. Now, it's not known where the 12 generations from after *Suhotra* lived as they don't find any mention in the Indian literature. It's only with 13th generation from after *Suhotra* that *Hasti* shows up as the founder of *Hastināpura*. Thus, it's only a conjecture that perhaps these 12 missing generations of the Lunar lineage dwelt in these Indus valley settlements that were suddenly deserted.

Lastly, the end of Phase 5 (1700-1300 BCE) is coincident with the times of *Divodāsa* (99P, 1332 BCE) of *Pāñcāla* kingdom and the much-worshiped *Rāma* (100C, 1303 BCE) of *Ayodhyā*. While *Divodāsa* is mentioned in the *Rgveda*, *Rāma* also conducted 10 horse-sacrifices after he finally became king in 1299 BCE at an age of 31. Another same-age contemporary of *Rāma*, from one of the 5 *Pāñcāla* kingdoms, was *Paura* (100O, 1303 BCE) who was wiped out by the *Nīpā*, as also recounted in *Mahābhārata*. It may have been these military conquests that ended the Phase 5. Also, the *Dāśarājña* war, the Battle of Ten Kings mentioned in the *Rgveda*, was fought on the banks of *Paruṣanī* River (now, *Rāvī*) and in it the *Bharata/Puru* king *Sudāsa* (103P, 1216 BCE), the great great grandson of *Divodāsa*, defeated 10 kings of this region. This *Sudāsa* is different from the *Sudāsa* / *R̥tuparṇa* (88C, 1651 BCE) of Solar lineage at *Ayodhyā*.

The Indus script, the script of this region, still remains to be deciphered but it can be surmised well that its language must have been similar to the ancient Vedic *Samskr̥t* [See Appendix E].

2.2 *Svayambhuva Manu* (3391 BCE)

Svayambhuva Manu (Gen.28, 3391 BCE), meaning “the self-born wise man”, a.k.a. the very first *Brahmā*, is the oldest historically-known human being on Earth who existed in the beginning. It is stated in the *Purāṇā* that *Svayambhuva Manu* was self-born, at a time when the entire Earth was flooded with water. But archaeology tells us that the sites of Pre-Harappan Period (7000-3300 BCE) such as Mehrgarh (now in Pakistan) have confirmed CRD dates in range of 7000-3300 BCE. It's also known that the modern humans have existed since 60,000 BCE. So, it simply may have been that *Svayambhuva Manu* branched off from his original tribe and that his children didn't know much of his ancestry. As his ancestry remained unknown to the later generations, they simply mentioned him as the first one who was self-born.

The history of Vedic civilization starts with this *Svayambhuva Manu* in 3391 BCE. It was *Svayambhuva Manu* who made known to his descendants the various Vedic sciences and taught them *Samskr̥t*, the most perfect language based on the science of sounds. As we will read ahead, all other known civilizations such as those of Indus Valley (~3300 BCE), Egypt (~3100 BCE) and Mesopotamia (Sumer, Babylonia, Assur) (~2580 BCE) started appearing only later of *Svayambhuva Manu*'s time. But as these civilizations also used the Vedic calendar, it can be inferred that their origin lies in the early Vedic civilization itself. There are no extant records to investigate the origins of *Svayambhuva Manu* but, as he came 783 years later of 4174 BCE, the time point where the Vedic calendar begins, he must have inherited the knowledge of Vedic time cycles from some other humans. They were definitely not the aliens, as conspiracy theorists may like to believe.

It is said that *Svayambhuva Manu* effected the birth of a lady *Śatarūpā* from the left half of his body and married her. Whether *Śatarūpā* was created from his left-half or came from some other tribe is factually unknown and is immaterial. What is important is that *Svayambhuva Manu* had 2 sons, *Priyavrata* and *Uttānapāda*, and three daughters from *Śatarūpā*. These two primary lineages of the earliest Vedic civilization, those of *Priyavrata* and *Uttānapāda*, are known from the *Purāṇā* and their times have been worked out by genealogical back-calculations from the time of king *Rāma* (100C, 1302 BCE) of Solar lineage.

From these two lineages originated the forefathers of various civilizations at different points of time. As stated in the *Purāṇā*, there was a highly egoistic king *Vena* (Gen.39B, 3072 BCE) in the 12th generation of *Svayambhuva Manu*, in the lineage of *Uttānapāda*, who ordered all worship to be offered solely to him and who was killed by some sages for this behavior. It is stated that at *Vena*'s death, as his kingdom was left without a king, the sages churned his body and at first emerged *Niṣāda*, a frightened short black man who was expelled to *Vindhya* by the sages, and then emerged *Pr̥thu* (40B), a fully grown-up man bearing a bow & quiver. It can be noted that a *Pr̥thu* (40A) is also the son of *Prastāva* (39A) in the very same generation. As stories have a way of growing with time, it can be concluded reasonably well that *Pr̥thu* (40B) didn't appear out of thin air but that it was king *Pr̥thu* (40A), the son of *Prastāva*, who was also adopted as the religious son of *Vena* by the sages in a ceremony. As for *Niṣāda*, he may have been an illegitimate son of *Vena* from an outcast woman, a fact which may have emerged at *Vena*'s death. As his acceptance as a royal king was out of question on account of his low birth, he was announced as the king of forests and ordered away by the sages to *Vindhya* forests wherein he led his life by hunting and selling wild game. His descendants came to be known as the *Niṣādā*. *Pr̥thu*'s son *Nakta* (41A) continued the line of *Priyavrata* while his son *Antardhāna* (41B) continued the line of *Uttānapāda*.

Gen	Year	(A) Primary Lineage (Priyavrata)	(B) Primary Lineage (Uttānapāda)
28	-3390	<i>Svayambhuva Manu</i> (w) Śatarūpā	
29	-3361	<i>Priyavrata</i> (w) Kāmyā	<i>Uttānapāda</i> (w) Sunīti, Surūci
30	-3332	<i>Agnidhra</i> (w) Purvachita (b) <i>Uttama Manu, Tāmasa Manu, Raivata Manu</i>	<i>Dhruva</i> (w) Dhānyā (b) Apasyati, Apasyanta, Kirtimān
31	-3303	<i>Nābhi</i> (w) Jayantī / Merudevī	Śiṣṭa (w) Succhayā: (d) of Agni(dhra)
32	-3274	Rśabha	Prācīnabarhi I / Vatsara
33	-3245	Bharata	Udāradhi / Puṣparṇa (w) Dashā, Prabhā
34	-3216	<i>Sūmati</i> (an adjective, not a name) <i>Indradyumna</i>	Divañjaya / Vyuṣṭa (b) Urja (w) Puṣkarinī
35	-3187	<i>Parameṣṭhi</i>	Ripu / Sarvateja (w) Ākūti
36	-3158	<i>Pratihāra</i>	Cākṣuṣa <i>Manu</i> (w) Naḍvalā
37	-3129	<i>Pratihartā</i>	Ruru / Ulmuka (w) Āgneyī
38	-3100	<i>Bhāra</i> (only a verb, not a name) <i>Udgītha</i>	Āṅga (w) Sunīthā (b) Sumanā, Svāti, Kratu, Āṅgira, Maya
39	-3071	<i>Prastāva</i>	Vena (n) killed by the sages
40	-3042	<i>Pr̥thu</i> (w) Arci (n) also adopted as religious son of Vena	Niṣāda (expelled) Pr̥thu+ (w) Arci
41	-3013	<i>Nakta</i> (b) Sūta, Māgadha	Antardhāna / Vijitāśva (w) Śikhanḍinī, Nabhasvatī
42	-2984	Gaya	Havirdhāna (w) Dhiṣanā
43	-2955	Citraratha (b) Nara	Prācīnabarhi II / Barhiṣata (w) Suvarṇā; (d) of Samudra
44	-2926	Samrāṭ	Pracetā (10 brothers) (w) Mariṣā
45	-2897	Marici	Dakṣa (w) Asiknī: (d) of Virāna (n) many of his sons went out to all corners of the world
46	-2868	Kaśyapa (w) Aditi: (d) of Dakṣa	X
47	-2839	Vivasvān / Surya (Sun god) (b) Viṣṇu / Shakra / Tavastā etc.	X
48	-2810	Vaivasvat <i>Manu</i>	X

Table 2.4

Synchronized List of Two Primary Lineages #Gen. 28-48

The line of *Priyavrata* (29A) pertains to only the kings of *Jambu Dvīpa*⁸⁸, and of *Hima* / *Bhāratavarṣa* therein, which was one of the seven lands distributed by *Priyavrata* amongst his seven sons:

1. *Jambu Dvīpa (Agnidhra, 30A)*
2. *Plakṣa Dvīpa (Medhātithī)*
3. *Śālmalī Dvīpa (Vapuṣmān)*
4. *Kuśa Dvīpa (Jyotiṣmān)*
5. *Krauñca Dvīpa (Dyutimān)*
6. *Śaka Dvīpa (Bhavya) [first mention of the Śakā]*
7. *Puṣkara Dvīpa (Sāvana)*

The region of kingdom of *Uttānapāda* (29B) is not specified clearly but it probably lay right next to that of his brother *Priyavrata*. The seven *Dvīpā* allotted to *Priyavrata*'s sons which were small areas of few sq.km. separated by natural barriers such as mountain ranges are wrongly considered to be the 7 modern-day continents by most. *Agnidhra* (30A) further divided his kingdom of *Jambu Dvīpa* into 9 regions⁸⁹ between his nine sons:

1. *Hima (later Bharata), south of the Himāvata (Nābhi)*
2. *Hemakūṭa (Kimpuruṣa)*

⁸⁸ *Dvīpa* (द्वीप): land segment / divided land, also means an island

Jambu Dvīpa (जम्बु द्वीप): Land of Apple Trees (*Jambu* = Apple), about modern-day Himachal or Uttarakhand

⁸⁹ वसंति तेषु सत्त्वानि नानाजातीनि सर्वशः ।

इदं हैमवतं वर्षं भारतं नाम विश्रुतम् ॥ BDP 15.31

हेमकूटं परं ह्यस्मान्नाम्ना किंपुरुषं स्मृतम् ।

नैषधं हेमकूटात् हरिवर्षं तदुच्यते ॥ BDP 15.32

हरिवर्षात्परं चापि मेरोश्च तदिलावृतम् ।

इलावृतात्परं नील रम्यक नाम विश्रुतम् ॥ BDP 15.33

रम्यकात्परतः श्वेतं विश्रुतं तद्विरण्मयम् ।

हिरण्मयात्परं चैव शृंगवत्तः कुरु स्मृतम् ॥ BDP 15.34

धनुःसंस्थे तु विज्ञेये द्वे वर्षे दक्षिणोत्तरे ।

दीर्घाणि तत्र चत्वारि मध्यमं तदिलावृतम् ॥ BDP 15.35

अर्वाक् च निषधस्याथ वेद्यद्वं दक्षिणं स्मृतम् ।

परं नीलवतो यच्च वेद्यद्वं तु तदुत्तरम् ॥ BDP 15.36

3. *Niṣadha (Harivarṣa)*
4. *Ilāvarta*, central lands with *Meru* mountain (*Ilāvarta*)
5. *Ramyaka*, lands between *Meru* & *Nīla* mountain (*Ramya*)
6. *Śveta*, lands to north of *Meru* (*Hiraṇmaya*)
7. *Śrīgavāna/Kuru*, lands further north of *Śveta* (*Kuru*)
8. *Bhadrāśva*, lands east of *Meru* (*Bhadrāśva*)
9. *Gandhamādana/Ketumāla*, lands west of *Meru* (*Ketumāla*)

As the population increased, these regions expanded slowly and also took on expanded meanings. As per Vedic texts, all present humans are the descendants of the *Svayambhuva Manu*, either through *Priyavrata* or through *Uttānapāda*. No other person of historicity, from any world civilization, is known to exist earlier than the *Svayambhuva Manu*. Three sons (*Uttama Manu*, *Tāmasa Manu* & *Raivata Manu*) of *Priyavrata* migrated out and became *Manu* (wise men) in their own nearby lands known as the *Manvantara*⁹⁰. Some of their populations moved out still farther to regions of Central Asia and the Middle-East. It is these early migrations out of India from which the Egyptian civilization seems to have come into being about 3100 BCE. The Mesopotamian civilization (~2580 BCE) is quite different from the Egyptian civilization and seems to have its roots in a later

⁹⁰ Here it should be clarified that, just like the word *Varṣa* means the year as well as the country, the word *Manvantara* (*Manu+Antara*: the Time-Interval / Land of *Manu*) has two meanings: 1) the time-interval between the two primal *Manu* (one *Svayambhuva Manu* to another *Svayambhuva Manu*) 2) the lands ruled by these *Manu*. So, when the *Purāṇā* describe the *Manvantara* ruled by *Manu* such as *Uttama Manu*, *Tamasa Manu* & *Raivata Manu*, they are not meaning to describe the time-intervals between them but rather the lands of these *Manu*. Here, if they had meant the *Manvantara* to mean the time-interval, how could they have simultaneously mentioned *Uttama Manu* as the grandson of *Swayambhuva Manu*? But wherever the *Manvantara* is mentioned in regards to time & *Yuga* calculations, it should naturally be taken to mean the time-interval between the two primal *Manu* (one *Svayambhuva Manu* to another *Svayambhuva Manu*). The context can't be overlooked.

migration of the *Asura* tribes, from about the time of *Vaivasvat Manu*. These migratory people became the progenitors of various tribes and races around the entire world. The accuracy of these two primary lineages, that originated in *Svayambhuva Manu* and continued up to *Vaivasvat Manu* (48A/C), is established by noticing the correct relative chronology of *Kaśyapa* (46A) and his father-in-law *Dakṣa* (45B) towards their end when we analyze their 21 generations in parallel.

Now, *Kaśyapa* (Gen.46A, 2869 BCE) married 13 daughters of *Dakṣa* (*Aditi*, *Diti*, *Danu*, *Ariṣṭā*, *Surasā*, *Surabhi*, *Vinatā*, *Taḥrā*, *Krodhavaśā*, *Irā*, *Kadru*, *Vishvāmuni*, *Tamsā*) from each of whom originated a different tribe. To his wife *Aditi*, the daughter of *Dakṣa*, were born the twelve *Ādityā* (Gen.47, 2840 BCE) that included *Viṣṇu* (the supreme god), *Vivasvān* (a.k.a. *Sūrya*, the Sun god) and *Indra* (a.k.a. *Vāsava*, *Śakra*, the king of gods and of the heaven). These 12 *Ādityā*, along with 11 *Rudrā*, 8 *Vasu* and the 02 *Aśvin*, later came to be known as the 33 chief gods of the Vedic civilization. *Kaśyapa* also became the father of the *Daityā* from his wife *Diti*, the *Dānavā* from *Danu*, the *Nāgā* (serpents) from his wife *Kadru*. Many others sons were born to him through his 13 wives. The good sons of *Kaśyapa*, mostly born to *Aditi*, came to be known as the *Devā* or the *Surā* (the gods) while his bad sons came to be known as the *Asurā*⁹¹ who included the *Daityā*, the *Dānavā* and the *Rākṣasā*. Subsequently, *Brahmā* of that time bestowed the kingship⁹² of various stars, planets, water bodies and mountains upon different gods (*Devā*) and *Asurā*. The gods inclined to remain pure and content in mind, body and spirit, were always at war with their cousins, the *Asurā*, who were full of base qualities and were mostly given to the satiation of base desires.

⁹¹ *Asurā* are factually the *Ahuras* of Iranians, as mentioned in the *Avestas*

⁹² This is why you read about a Sun god ruling the Sun and the *Śani*, a son of Sun, ruling the planet Saturn.

Gen	Year	Kaśyapa with Aditi	Kaśyapa with Diti	Kaśyapa with Diti	Kaśyapa with Danu
46	-2868	Kaśyapa (w) Aditi (fil) Dakṣa	Kaśyapa (w) Diti (fil) Dakṣa	Kaśyapa+ (w) Diti (fil) Dakṣa	Kaśyapa+ (w) Danu (fil) Dakṣa
47	-2839	Vivasvān / Sūrya (the Sun god) (b) Viṣṇu, Indra	Hiranyakasipu (b) Hiranyakāṣa	Vajrāṅga	X
48	-2810	Vaivasvat Manu (o) Yama, Śani (sis) Yamunā (d) Ilā	Pṛahlāda (cb) Andhaka+: (f) Hiranyakāṣa	Tāruka / Tārkāksura (n) killed by Śīva	Vṛṣaparvā I (d) Suruci (sil) Virocana
49	-2781	Ilā / Sudaryumna (h) Buddha	Virocana (w) Suruci: (f) Vṛṣaparvā I (w) Kamalukṣī.(b)Kamalākṣa	Kamalākṣa (b) Tārkāksa, Vidyumñālī (n) lived in 3 Flying Forts, killed by Śīva	X
50	-2752	Pururavā (w) Urvaśī	Bali (n) dethroned by Vāmana, an avatar of Viṣṇu	X	Svarbhānu (d) Prabhā (sil) Āyu
51	-2723	Āyu (w) Prabhā (fil) Svarbhānu	Bāṇa I	X	X
52	-2694	Nahuṣa (w) Virajā (s) Yayāti, Anenā, Rambhā, Raji etc.	X	X	Vṛṣaparvā II (sil) Yayāti (d) Śarmisthā

Table 2.5

Some Lines started from Kaśyapa #Gen. 46-52

The most *Asurā*, scattered by the gods in various wars, moved out of their Himalayan homeland (about the modern-day Haridwar and Rishikesh) and settled in the *Sapta Saindhava* region (Seven rivers region about Indus) that lay to its west. Some of these *Asura* tribes moved out still farther and finally settled in regions of Central Asia and Mesopotamia about 2580 BCE. The *Airyana Vaeja* (lit. “*the homeland of Āryā*”) mentioned in the *Avesta* (~600 BCE) of the *Asurā* (*Ahura* in Avestan, the early Zoroastrians) fell to the east of the *Sapta Saindhava* region and not in Central Asia, as was the crafty theory invented by Max Muller. The 16 lands of these *Ahuras* fell in the *Sapta Saindhava* region itself.

Frequently, the *Asurā* grouped and launched attacks on the heavens, their original homeland, to wrest its control from the gods and were also successful on many occasions. Similarly, the gods too grouped and conducted pre-emptive raids on the *Asura* colonies. Occasionally, they also made peace with each other, such as that witnessed during the event of *Samudra Manthana*, (“churning of sea, a local water body”) before which the *Asurā* had come to occupy the heavens. This took place about the time when *Vaivasvat Manu* must have been a child or in his teens, probably about 2830 BCE. It is said that many natural medicinal plants were added to the sea prior to its churning and that some nectar was to finally emerge as its fruit. It can’t be known if the nectar that emerged made the gods physically immortals but it simply may have been that the idea of *Samudra Manthana*, and of the nectar emerging as its fruit, was a stratagem⁹³ devised by the clever god *Viṣṇu* who wanted to weaken the minds and bodies of *Asurā* before they could be killed. After the nectar emerged, the gods ingested it, an act which is said to have made them immortals. Whatever be the truth of the nectar, the gods were certainly successful in their plans as, immediately after the *Samudra Manthana*, they killed the most of tired *Asurā* and the rest fled

⁹³ A similar ploy of “*Āsvatthāmā has been killed*” was devised by *Kṛṣṇa* in the *Māhābhārata* war to help kill the powerful warrior *Dronācārya*.

from the heavens that they had come to capture. And the gods were also immortalized in the sense that all Vedic worship started being offered in their names. To worship the right and reject the wrong has always been a core principle of Vedic civilization.

All this history, of various wars of gods with the *Asurā* and *Daityā* was known to *Vaivasvat Manu* as he was the son of *Vivasvān*, the Sun god. These histories were transmitted orally for many generations before being written down in the *Purāṇā*. It can be noticed from the previously given table that all the various characters of these Puranic accounts existed next to each other in time. Whether it is the Rudra god *Śiva* (Gen.46, 2869 BCE) killing *Andhaka*, *Tārakāsura* and *Vidyunmālī* or the god *Viṣṇu* killing *Hiraṇyakaśipu* in the form of *Narasiṁha* (lion man), all of them were real historical people who once existed in flesh and blood. They have since continued to exist in their subtle bodies and are said to help the needy when called upon through the Vedic *Yajña*. Due to their being considered as immortals, their historicity has been wrongly considered as plain mythology.

2.3 *Vaivasvat Manu* (2811 BCE)

Shortly after the event of *Samudra Manthana*, about 2820 BCE, there occurred a great deluge that is said to have submerged the most Earth. *Vaivasvat Manu* (48A/C, 2811 BCE), the son of *Vivasvān* (the Sun god) and the grandson of *Kaśyapa*, was saved in this flood by his uncle, the god *Viṣṇu*, who is said to have taken the form of a huge fish that maneuvered *Manu*'s boat through the deluge⁹⁴

⁹⁴ Although this deluge is thought to have destroyed everything as per the *Purāṇā* but this view doesn't appear correct as the Egyptians exist since at least 3100 BCE and seem to have survived it. The Egyptians survived because either this deluge didn't occur in their area or, if it did, it was nullified by the deserts of Egypt that absorbed all its waters. Similarly, the people of various early migrations out of India must have settled variously, some in highlands, some on the riverbanks, some near

waters to a high cliff in the Himalayas. *Vaivasvat Manu*, who was thus saved, along with his wife, the *Saptarṣi* (the seven holy sages) and some animal pairs, climbed down from the mountains and settled in the city of *Ayodhyā*, on the south bank of *Sarayū* River, and became the progenitor of a tribe of men that came to be known as the *Āryā* or the *Mānava*. *Āryā*, the descendants of *Manu*, followed the fourfold code of conduct laid down in the *Vedā*. Thus, while the Vedic civilization reestablished itself in *Ayodhyā* under *Vaivasvat Manu*, the civilization of the Vedic gods continued to exist in the Himalayan regions of Haridwar / Rishikesh / Gangotri and that of the *Asurā*, the cousins of gods, took roots in the *Sapta-Saindhava* region.

Vaivasvat Manu inherited the entire North Indian region for his kingdom, an area bound by Himalayas in the north, *Prayāga* in the East, the *Sapta Saindhava* (7 Rivers about Indus, *Hepta-Hendu* of Avesta) in the west and *Vindhyaśala* in the south. This entire region was hereafter known as the *Āryāvarta*, the homeland of the *Āryā*. The areas south and south-west of *Āryāvarta* was known as *Pātāla* (the Nether lands) and the areas to its north were the *Svarga* (Heavens). Taken together, these 3 areas formed the region of *Trilokī* (the three worlds), which is now the modern-day India. Many descendants of *Manu*, as well as those of tribes of *Devā*, *Asurā*, *Gandharvā*, *Rākṣasā*, and *Nāgā*, moved out of *Āryāvarta* at different points of time and, passing through the *Sapta Saindhava* region, settled down in the various Central Asian and Middle-

the coastal areas, some in the mountains and they must have also greatly expanded their population. It's highly unlikely that a 'global' deluge could kill even those people who chose to live in high altitudes or in deep deserts. It is scientifically known today that even if all the ice on Earth (Polar Ice-caps and Mountain Glaciers) were to melt, the sea level would rise only by 216 feet. While this would be catastrophic for the most cities of the world which are low-lying, most people in high altitudes would easily survive it without being affected much. So, it would be wrong to think that all living creatures perished in this deluge that occurred during the time of *Vaivasvat Manu*.

Eastern lands. These later migrants, along with the early migrants, filled up the rest of the Earth. This is how the Egyptian civilization first came into existence from the early migrants and later the Mesopotamian civilization from the later migrants. The accounts of *Vaivasvat Manu* and his deluge travelled with these migrants to their settlements in Sumer and Babylonia where these became a part of their folklore. Based on these Mesopotamian accounts, that had already become half-corrupt over the centuries, the Hebrews composed the genesis of their Bible. It's clear that the story of Noah in Genesis of Bible is nothing but devolution of the original account of *Vaivasvat Manu* and his deluge. From the subsequent migrations out of Egypt and Mesopotamia, the lands of Europe were populated.

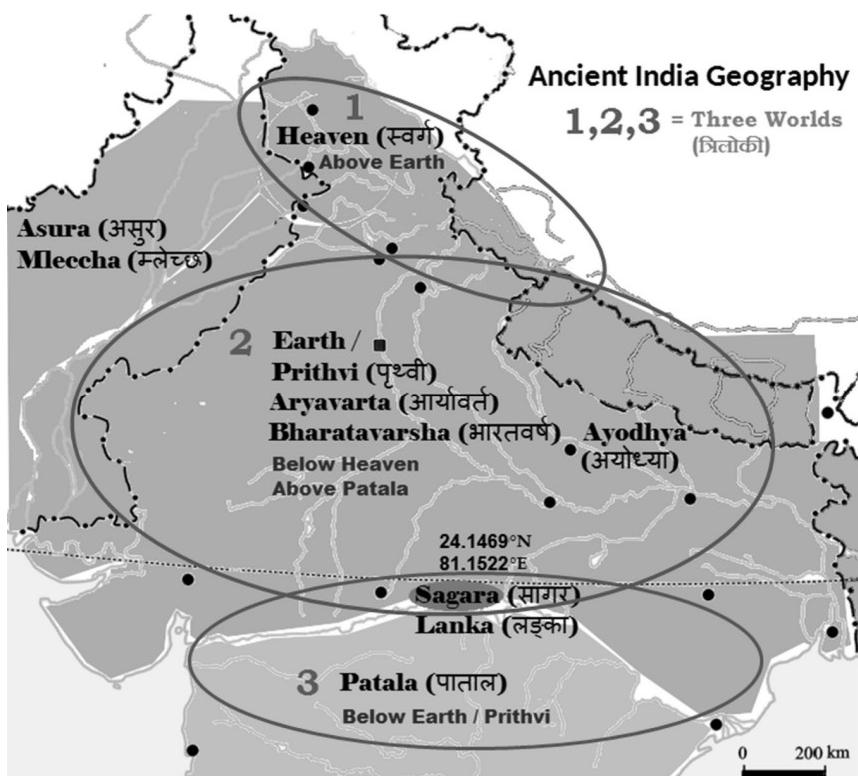


Figure 2.2
The Geography of Ancient India

From *Vaivasvat Manu* started two principal *Ārya* lineages: the Solar Line (as *Manu* was the son of Sun god) and the Lunar Line of the Moon god, whose daughter-in-law *Ilā* was the daughter of *Manu*, married to his son *Buddha* (Mercury). The Solar Line ruled from *Ayodhyā* and the Lunar Line from *Pratiṣṭhāna*⁹⁵. Much is known about the most kings of these two major *Ārya* lineages (Solar, Lunar) and they can't be simply wished away like evident from their utter neglect by the imperial historians like Max Muller. Starting from these 2 lineages in ~2811 BCE, originated various tribes of men that first filled out the fertile plains of river *Gangā* and later came to occupy the western and north-western regions of India. In the Solar Line, 53 patriarchal generations exist from *Vaivasvat Manu* to *Rāma* (100C, 1303 BCE). So, by a simple genealogical calculation, *Vaivasvat Manu* (48A/C, 2811 BCE) can be calculated to have existed 1508 years (52*29) before the time of *Rāma* (1303 BCE). This time of *Vaivasvat Manu* is consistent with the time of a global deluge that is stated to have occurred in his youth. As the Sumerian texts also claimed of a catastrophic flood in Mesopotamia in its earliest times, excavations were conducted at Ur in Mesopotamia by Leonard Wooley in 1922. A flood zone, in form of an 8-feet layer of silt and clay, consistent with the sediment of the Euphrates River was found in these excavations and was dated to ~2800 BCE.

Now, Max Muller must have reached nearly the same conclusion about the antiquity of Vedic civilization of *Āryā* by this simple genealogical calculation. But, as he was employed by the imperial British who were also the oppressors of India, he dared not publish such a historical conclusion that could remove the false notion of British superiority. So, Max Muller invented the *Āryā* Invasion (A.I.T.) theory by "moving" the *Āryāvarta* (the homeland of *Āryā*) out of India and transposing it in some cold barren lands of Central Asia. In doing so, he took help of the *Avesta* by

⁹⁵ The eastern side of the *Gangā* and *Yamuna* confluence, now a town known as *Jhansi* next to Allahabad

misinterpreting the location of the *Airyana* (corrupt form of *Āryāvarta*, the lands of *Āryā*) mentioned therein which, otherwise, clearly points to Indian lands adjacent to the *Sapta Saindhava* region. Subsequently, Max Muller theorized that the last of Indus Valley civilizations were destructed by the *Āryā* invading India in ~1650 BCE, the time period of his A.I.T. theory. He then devised a Vedic chronology that states that after the *Āryā* arrived in India in ~1650 BCE, the *Vedā* were composed in ~1200 BCE, the *Brāhmaṇā* in ~1000 BCE, the *Rāmāyaṇa* and *Mahābhārata* in ~900 BCE and the *Purāṇā*⁹⁶ about 700-500 BCE. He 'dated' *Rāmāyaṇa* by theorizing that *Rāma* must have existed about the time of *Mahābhārata* itself, if at all. He completely ignored the extensive genealogies of the Solar and Lunar lineages. But as this utterly stupid Vedic chronology of his was formulated to only please his British masters and completely lacked any scholarship, it was criticized by many other reputed scholars of his day. As a thief naturally feels sorry on being caught, Max Muller had to eat crow and he finally disowned⁹⁷ his Vedic chronology. The reason for his neglect of the extensive genealogies given in the *Purāṇā* is easy to comprehend. For, if it was to be accepted that the *Āryā*, from after the time of *Vaivasvat Manu*, expanded westwards from their original location of *Ayodhyā*, the A.I.T. theory stood self-demolished, an event that could have upset the devised historical timeline of Christianity. Also, the dishonesty of Max Muller in misappropriating academic work of others is made known to us by his obituary⁹⁸. So, what weightage may be accorded to such crafty theories of a dishonest crook whose primary intent was

⁹⁶ The *Purāṇā* came first, much before the *Vedā* and other texts:

पुराणं सर्वशास्त्राणां प्रथमं ब्रह्मणा स्मृतम् ।
अनन्तरं च वक्त्रेभ्यो वेदास्तस्य विनिर्गताः ॥ MP 53.3

⁹⁷ "Whether the Vedic hymns were composed 1000 or 1500 or 2000 or 3000 years B.C., no power on earth will determine."

⁹⁸ Scientific American, Supplement No. 1301 (pub. Dec 8, 1900):
"What he constantly proclaimed to be his own great work, the edition of the "Rgveda," was in reality not his at all. A German scholar did the work, and Muller appropriated the credit for it."

only to establish the supremacy of Christianity rather than the establishment of truth?

- “*The ancient religion of India is doomed. And if Christianity does not take its place, whose fault will it be?*”⁹⁹
- “*It (the Rgveda) is the root of their religion and to show them what the root is, I feel sure, is the only way of uprooting all that has sprung from it during the last three thousand years.*”¹⁰⁰

2.3.1 The Genealogies

Now, given over many following pages are the genealogies from *Vaivasvat Manu* onwards which have been collated from various *Purāṇā* that provide them either directly or indirectly in form of historical accounts. The original timeline of these genealogies has been reconstructed by segmenting them in various blocks and thereafter validating these blocks by their synchronization with other genealogical blocks. With the beginnings and ends, or the middle, of these blocks aligned by relative chronology, such blocks become self-validated. In this reconstruction, all well-known and plausible details of these blocks such as the various inter-relationships and their known ages (*Mahā-Yugā*) have been considered. Duplicate names, possibly erroneous names and any interjected lists have not been considered. It’s quite possible that, within a genealogical block, some names maybe in error of a generation, but the main genealogical blocks are more or less quite accurate. No source has been left untapped in order to arrive at the real genealogies. Should any other details emerge from the copious Vedic texts in future, the secondary genealogies maybe further fine-tuned. In some genealogies in the *Purāṇā*, the grandson is stated as the son somewhere, elsewhere only the prominent kings are listed. The reconstruction is effected in such a manner that it doesn’t violate the ancestor-descendent

⁹⁹ In a letter to Duke of Argyle, acting Secretary of State - India, 1868 CE

¹⁰⁰ In a letter to his wife (Dec 9, 1867 CE)

relationship of the most lists. These collated genealogies now look to be in their near-original form because no further addition or omission can be made to them without violating some known constraint. Nearly all kings of these genealogies were quite famous with well-established historical accounts. The most trustworthy genealogies, sparing the earliest generations, are found in the *Matsya Purāṇa* and these have been improved upon by their comparison with those from other *Purāṇā*.

Presently there is a lot of confusion about the two periods of *Rāmāyaṇa* and *Mahābhārata* but, as will become clear ahead, the *Rāmāyaṇa* war (1299 BCE) and the *Mahābhārata* war (827 BCE) are two sheet anchor dates of Indian history. To first facilitate an understanding of their intermediate period, the Solar Line genealogy of *Matsya Purāṇa*¹⁰¹ that accurately gives us 16 kings from *Rāma* to *Śrutāyu*¹⁰² at the time of *Mahābhārata* war is given next. In the first 3 columns are given the 3 solar genealogies that, proceeding from *Rāma*, branch out after *Ahinagu* (109C). Given in the 4th column is the genealogy of the Solar line of *Janaka* kings of *Mithilā*¹⁰³, that runs unbroken from *Sīradhvaja Janaka*, the father-in-law of *Rāma*, up to *Kṛti II*, its last ruler who was likely deposed by *Mahānandī* (Gen.131, 404 BCE). Here, the genealogy (C1) of *Matsya Purāṇa*, ending in *Śrutāyu*, is without any dispute. Also the *Purāṇā* genealogy (C2), branching out from *Ahinagu*, is without any dispute up to king *Maru* (123C2, 636 BCE).

¹⁰¹ Only the *Matsya Purāṇa* correctly records the Solar lineage from *Vaivasvat Manu* up to *Śrutāyu* at the time of *Mahābhārata* war as given in. The same genealogy given in the *Rāmāyaṇa* text itself is nothing but a later interjection, as becomes known in an instant when it's compared with those given in all the other *Purāṇā* and the *Mahābhārata*.

¹⁰² From the *Mahābhārata*, it's known that the old king *Bṛhadbala* of *Kosala* (*Ayodhyā*) died in the *Mahābhārata* war but the *Matsya Purāṇa* (MP 11.55) tells us that a king *Śrutāyu* of *Ayodhyā* also died in the *Mahābhārata* war. This *Śrutāyu* was a cousin of *Bṛhadbala* who ruled a division of *Kosala* and participated in the *Mahābhārata* war along with him.

¹⁰³ VP 4.5.29-35

Gen	Year	(C) Solar Line (Br̥hadbala)	(C1) Solar Line (Śrūtāyu)	(C2) Solar Line (Hiranyanābha)	(D) Solar Line (Janaka)
99	-1331		... (under Daśaratha)		Śiradhvaja (sil) Rāma
100	-1302	Rāma (n) old-age son, born 1331 BCE			Bhānumān
101	-1273	Kuśa (b) Lava			Śatadyumna
102	-1244		Atithi		Śuci
103	-1215		Niṣadha		Urja
104	-1186		Nala		Śatadhvaja
105	-1157		Nabha		Kṛti I
106	-1128		Puṇḍarīka		Añjana
107	-1099	Kṣemadhanvā			Kuruṣit
108	-1070		Devānīka		Ariṣṭanemi
109	-1041	Ahinagu / Ahina			Śrūtāyu
110	-1012	Prasuśruta (n) must be a son of Ahinagu	Sahasrāśva (f) Ahinagu	Ruru Pāriyātra (f) Ahinagu	Supārśva I
111	-983	Susaṁdhi	Candrāyaloka	Śilā / Devala	Śrījaya
112	-954	Amarṣa	Tārāpīda	Vaceala Unnābha / Utka	Kṣemāvī
113	-925	Sahasvāna	Candragiri	Vajranābha	Anenā
114	-896	Viśvabhava	Bhānuṣandra	Śaṅkhaṇa	Bhaumaratha
115	-867	Br̥hadbala **	Śrūtāyu **	Yuṣitāśva	Satyaratha
116	-838	Br̥hadkṣaya, Urukṣaya	X	Viśvasaha	Upagu
117	-809	Kṣaya	X	Hiranyanābha	Upagupta
118	-780	Vatsavyuha, Vatsadroha	X	Puṣya / Puṣpa	Svāgata
119	-751	Prativyuha, Prativyoma	X	Dhruvasaṁdhi (n) killed by lion	Svānanda
120	-722	Divākara / Bhānu	X	Sudarśana	Suvarcā
121	-693	Sahadeva	X	Agnivarṇa	Supārśva II
122	-664	Br̥hadāśva, Dhruvāśva	X	Śighraga	Subhāṣa
123	-635	Bhānuratha [+INT. LIST of 8-10 kings]	X	Maru (n) resides in Kalāpa; future tense starts	Suśruta

Gen	Year	(C) Solar Line (Br̥hadbala)	(C1) Solar Line (Śrūtāyu)	(C2) Solar Line (Hiranyanābha)	(D) Solar Line (Janaka)
124	-606	Kṛtañjaya, Kṛtavarmā (sil) Sahasranīka	X	X (Prasūrūta) (n) this block starts @ Gen.110	Jaya
125	-577	Ranejaya, Ranañjaya	X	X (Susamdhī)	Vijaya
126	-548	Sañjaya Mahākosala	X	X (Amarṣa)	Rta
127	-519	Prasenjit (d) Vajīra (sil) Ajātaśatru	X	X (Sahaseāna)	Sunaya
128	-490	Viḍūḍabha / Virudhaka	X	X (Viśvabhava)	Vītahavya
129	-461	Kulaka / Kṣulika	X	X (Br̥hadbala)	Dhṛti
130	-432	Suratha	X	X	Bahulāśva
131	-403	Sumitra Mahānandī+	Mahānandī+	Mahānandī+	Kṛti II Mahānandī+

** Both Br̥hadbala and Śrūtāyu died in the Mahābhārata war (827 BCE)

Table 2.6

Genealogies of Four Solar Lines (Rāma- Mahānandī) #Gen. 99-131

The placement of Br̥hadbala much after Maru is clearly in error because an old Br̥hadbala is undisputedly known to have died in the Mahābhārata war. So, Br̥hadbala belongs to Gen.115 alongside his cousin Śrūtāyu. Now, in Viṣṇu Purāṇa (VP 4.4.108-110), the past tense is used before Maru, the present tense at him and, after him, the future tense is used which shows a disconnect. This tells us that the list from after Maru has been mistakenly compiled in the Purāṇa at the wrong place. Clipping away this list from after Maru (Prasūrūta to Br̥hadbala) and putting it in its right place by anchoring Br̥hadbala alongside Śrūtāyu, the original genealogy is restored. The interjected list of 8-10 kings after Bhānuratha (123C) is fictitious and can be ignored, as explained ahead.

Given next is the full genealogy of Solar Line (C) from Vaivasvat Manu to Sumitra, as given in Matsya Purāṇa and as just restored above; it has been evaluated to be fully correct and it serves as the baseline for all secondary genealogies.

Gen	Year	(C) Solar Line	Gen	Year	(C) Solar Line
48	-2810	<i>Vaivasvat Manu</i>	75	-2027	<i>Hariścandra</i>
49	-2781	<i>Ikṣvāku</i>	76	-1998	<i>Rohita / Rohitāśva</i>
50	-2752	<i>Vikukṣi / Śaśāda</i>	77	-1969	<i>Vṛka</i>
51	-2723	<i>Purañjaya/ Kakutstha</i>	78	-1940	<i>Bāhu</i>
52	-2694	<i>Suyodhana / Anenā</i>	79	-1911	<i>Sagara</i>
53	-2665	<i>Pr̥thu</i>	80	-1882	<i>Asamañja</i>
54	-2636	<i>Viśvaga / Viśvarāṭ</i>	81	-1853	<i>Aṃśumāna</i>
55	-2607	<i>Ārdrā / Candra / Indu</i>	82	-1824	<i>Dilīpa I</i>
56	-2578	<i>Yuvanāśva I</i>	83	-1795	<i>Bhagīratha (b?) Śrutāyu</i>
57	-2549	<i>Śrāva / Śrāvanta</i>	84	-1766	<i>Nābhāga</i>
58	-2520	<i>Bṛhadāśva, Śatrujit</i>	85	-1737	<i>Ambarīṣa</i>
59	-2491	<i>Kuvalāśva, Dhundhumāra</i>	86	-1708	<i>Sindhudvīpa</i>
60	-2462	<i>Dṛḍhāśva (b) Daṇḍa</i>	87	-1679	<i>Ayutāyu</i>
61	-2433	<i>Pramoda</i>	88	-1650	<i>Rtuparṇa / Sudāsa (lc) Nala</i>
62	-2404	<i>Haryāśva</i>	89	-1621	<i>Saudāsa / Kalmāṣapāda</i>
63	-2375	<i>Nikumbha</i>	90	-1592	<i>Sarvakarmā</i>
64	-2346	<i>Samīhatāśva / Bahulāśva</i>	91	-1563	<i>Anaraṇya</i>
65	-2317	<i>Prasenjit / Urṇāśva (b) Akrtāśva</i>	92	-1534	<i>Nighna</i>
66	-2288	<i>Yuvanāśva II (fil) Matināra (sil) Jahnu</i>	93	-1505	<i>Raghu (b) Anamitra</i>
67	-2259	<i>Māndhātā</i>	94	-1476	<i>Dilīpa II / Khaṭvāṅga</i>
68	-2230	<i>Purukutsa</i>	95	-1447	<i>Aja</i>
69	-2201	<i>Trasadasyu (b) Vasuda</i>	96	-1418	<i>Dīrghabāhu</i>
70	-2172	<i>Samībhūta</i>	97	-1389	<i>Ajapāla</i>
71	-2143	<i>Tridhanvā</i>	98	-1360	<i>Daśaratha</i>
72	-2114	<i>Trayyāruna</i>	99	-1331	... (<i>Daśaratha</i>)
73	-2085	<i>Satyavrata</i>	100	-1302	<i>Rāma</i> (n) born 1331 BCE
74	-2056	<i>Satyavratha / Triśaṅku</i>	101	-1273	<i>Kuśa</i>

Table 2.7

Solar Line at Ayodhyā #Gen. 48-101

Gen	Year	(C) Solar Line	Gen	Year	(C) Solar Line
100	-1302	<i>Rāma</i> (n) born 1331 BCE	116	-838	<i>Bṛhadkṣaya / Urukṣaya</i>
101	-1273	<i>Kuśa</i>	117	-809	<i>Kṣaya</i>
102	-1244	<i>Atithi</i>	118	-780	<i>Vatsavyuha / Vatsadroha</i>
103	-1215	<i>Niṣadha</i>	119	-751	<i>Prativyuha / Prativyoma</i>
104	-1186	<i>Nala</i>	120	-722	<i>Divākara (lc) Adhisīma Kṛṣṇa</i>
105	-1157	<i>Nabha</i>	121	-693	<i>Sahadeva</i>
106	-1128	<i>Puṇḍarīka</i>	122	-664	<i>Bṛhadāśva / Dhruvāśva</i>
107	-1099	<i>Kṣemadhanvā</i>	123	-635	<i>Bhānuratha</i> [+INT.List]
108	-1070	<i>Devāñīka</i>	124	-606	<i>Kṛtañjaya / Kṛtavarmā (sil) Sahasrāñika</i>
109	-1041	<i>Ahinagu / Ahina / Ahinaka</i>	125	-577	<i>Raṇañjaya</i>
110	-1012	<i>Prasūruta</i>	126	-548	<i>Sañjaya Mahākosala</i>
111	-983	<i>Susamdhī</i>	127	-519	<i>Prasenjit (d) Vajirā (sil) Ajātaśatru</i>
112	-954	<i>Amarṣa</i>	128	-490	<i>Viḍūḍabha / Virudhaka</i>
113	-925	<i>Sahasvāna</i>	129	-461	<i>Kulaka / Kṣulika</i>
114	-896	<i>Viśvabhava</i>	130	-432	<i>Suratha</i>
115	-867	<i>Bṛhadbala</i> **	131	-403	<i>Sumitra Mahānandī+</i>

** Both *Bṛhadbala* and *Śrutāyu* died in the *Mahābhārata* war (827 BCE)

Table 2.8
Solar Line at Ayodhyā #Gen. 100-131

Of the time before *Rāma*, there are only 3 major differences that this genealogy has with genealogies from other *Purāṇā*, all of which lie between *Hariścandra* (Gen.75, 2028 BCE) and *Rāma* (Gen.100, 1303 BCE):

- After *Rohita*, the son of *Hariścandra*, it omits the four names of (*Harita, Cañcu, Vijaya, Ruru / Ruruka*) and places *Vṛka* directly after *Rohita / Rohitāśva*¹⁰⁴ where it should have been *Harita*

¹⁰⁴ तस्य पुत्रो हरिश्चन्द्रो हरिश्चन्द्राच्च रोहितः ।
रोहिताच्च वृको जातो वृकाद्वाहर्जयितः ॥ MP 12.38

- otherwise. This omission seems correct because: 1) *Vṛka* and *Harita* seem to have the same meaning of a tree/tree-trunk 2) *Bāhu* was known to be a gambler and the word *Cañcu* means the one of wavering mind 3) *Sagara* was a all-round conqueror and the name *Vijaya*, meaning a victorious one, is apt for him 4) *Asamañja* was expelled by his father *Sagara* for his violent acts against common men. He used to throw children in the river and the name *Ruru/Ruruka* means one of terrible Karma.
- After *Bhagīratha*, it omits *Śrutāyu* and instead places *Nābhāga* as his successor-son. Perhaps *Śrutāyu* was a younger brother of *Bhagīratha* who was entrusted with running the kingdom while *Bhagīratha* was away on his penance of 10 years.
 - It omits *Sudāsa* between *Rtuparṇa* and *Saudāsa/Kalmāṣapāda*. *Rtuparṇa* trained king *Nala* (husband of *Damayantī*) in throwing the gambling dice, a lot is known about *Saudāsa* as well but nothing about *Sudāsa* who must be *Rtuparṇa* himself.

The omission of the names of *Śrutāyu* and *Sudāsa* also seems to be right by the evidence of *Yugā*. It's known that *Hariścandra* ruled in a *Kṛta-Yuga* and that the time of youth of *Viśvāmitra*, was just at the juncture of a *Tretā-Yuga* and *Dvāpara-Yuga*¹⁰⁵. *Viśvāmitra* had tested *Hariścandra*, son of his contemporary *Triśaṅku*, by first asking for his kingdom and then exiling him. It can be seen that the generation times of *Hariścandra* (2028 BCE, 14 years short of start of 19th *Kṛta-Yuga*) and *Viśvāmitra* (2057 BCE, 7 years short of start of 18th *Dvāpara-Yuga*) fully satisfy these conditions. This time of *Hariścandra* also satisfies the statement of *Purāṇa* that *Paraśurāma*, the killer of *Kṣatriyā* and his junior contemporary who was present in his sacrifice as a young man, existed in 19th *Tretā-*

¹⁰⁵ अत्राप्युदाहरन्तीममितिहासं पुरातनम् ।

विश्वामित्रस्य संवादं चाण्डलस्य च पक्षणे ॥ MB 12.139.12

त्रेता द्वापरयोः संधौ तदा दैवविधिक्रमात् ।

अनावृष्टिरभूद् घोरा लोके द्वादशवार्षिकी ॥ MB 12.139.13

प्रजानामतिवृद्धानां युगान्ते समुपस्थिते ।

त्रेताविमोक्षसमये द्वापरप्रतिपादने ॥ MB 12.139.14

*Yuga*¹⁰⁶. *Paraśurāma* must have been about 75-78 years of age at the start of 19th *Tretā-Yuga* (1966 BCE). If now the time of *Hariścandra* be shifted up by two generations to accommodate *Śrutāyu* and *Sudāsa*, all these conditions would be falsified. So, the *Matsya Purāṇa* is quite right in eliminating the names of *Śrutāyu* and *Sudāsa*, while *Śrutāyu* was likely a brother of *Bhagīratha*, *Sudāsa* must have been an alternate name of *Rūparāṇa* himself.

Also, from *Saudāsa / Kalmāṣapāda* (Gen.89, 1622 BCE) to *Dilīpa II* (Gen.94, 1477 BCE) and from *Dilīpa II* to *Daśaratha* (Gen.98, 1361 BCE), there are two variations of lineages, as indicated in the tables above. But, here, there is no dispute regarding the number of generations. In any case, *Dilīpa II* existed 04 generations before *Daśaratha* and *Saudāsa / Kalmāṣapāda* existed 09 generations before him. So, for generations prior to *Saudāsa / Kalmāṣapāda*, it doesn't really matter as to which of these variations is chosen. The *Matsya Purāṇa* lineage, as given in the first column in the tables above, looks to be more trustworthy. Between *Saudāsa / Kalmāṣapāda* to *Dilīpa II*, it seems that the variations are just alternative names. Of *Aśmaka*, it is said that as his conduct was lowly and, as he used to do everything without any consideration of his being a third-order *Ārya* (a *Kṣatriya*), he was called *Sarvakarmā* (lit. "Doer of Everything"). Of the two variations from *Dilīpa II* to *Daśaratha*, it seems that the 3 kings were *Dirghabāhu*, *Raghu* and *Aja*.

Another statement¹⁰⁷ of *Purāṇa* that tell of *Māndhātā* (Gen.67, 2260 BCE) existing in 15th *Tretā-Yuga* doesn't seem to be right because, by count of almost all *Purāṇa*, *Māndhātā* was only 7 generations (203 years) prior to *Hariścandra* whereas the years from the end of 15th *Tretā-Yuga* (2410 BCE) to the time of *Hariścandra* (2028 BCE) are 382, nearly 179 years (6.17 generations) in excess of their actual

¹⁰⁶ एकोनविंशे त्रेतायां सर्वक्षत्रान्तकोऽभवत् ।

जामदग्न्यास्तथा पष्ठो विश्वामित्रपुरः सरः ॥ VYP 98.90

¹⁰⁷ पञ्चमः पञ्चदश्यां तु त्रेतायां सम्भूत्वं ह ।

मान्धातुश्चक्रवर्तित्वे तस्यौ तथ्य पुरः सरः ॥ VYP 98.89

gap of 203 years. For *Māndhātā* to have existed at even the end of 15th *Tretā-Yuga*, he should be placed at least 13 generations before *Hariścandra*, an idea not supported by any *Purāṇa*.

It may also be noticed that from after king *Bṛhadbala* (Gen.115, 868 BCE), the kings also tally correctly up to the time of *Mahānandī* (Gen.131, 404 BCE) if we weed out the interjected list of 8-10 kings that exists after *Bhānuratha* (Gen.123, 636 BCE). The reason of the presence of such interjected lists about this time is explained later when the *Kṛta/Mālava* Era is discussed. Now, all the secondary genealogies, as synchronized with the baseline genealogy of the Solar Line of *Vaivasvat Manu* at *Ayodhyā*, are given over the following pages. The index of all Puranic genealogies is as follows:

No.	Lineage / Genealogy
A	Primary Line of <i>Priyavrata</i> <Primary Line 1>
B	Primary Line of <i>Uttānapāda</i> <Primary Line 2>
C	Solar Line of <i>Vaivasvat Manu</i> <Major Solar Line>
D	Solar Line of <i>Janaka</i> at <i>Mithilā</i>
E	Lunar Line of <i>Puru</i> <Major Lunar Line>
F	Lunar Line of <i>Anenā</i> at <i>Kāśī</i>
G	Lunar Line of <i>Yadu</i> -> <i>Kroṣṭu</i>
H	Lunar Line of <i>Puru</i> -> <i>Hasti</i> -> <i>Kuru</i>
I	Lunar Line at <i>Magadha</i>
J	Lunar Line at <i>Avanti/Ujjain</i>
K	Lunar Line of <i>Jahnu</i> at <i>Kānyakubja / Kannauj</i>
L	Lunar Line of <i>Haihaya</i>
M	Lunar Line of <i>Kakṣeyu</i>
N	Lunar Line at <i>Aṅga</i>
O	Lunar Line of <i>Puru</i> -> <i>Hasti</i> -> <i>Nīpa</i>
P	Lunar Line of <i>Puru</i> -> <i>Hasti</i> -> <i>Mudgala</i>
Q	Lunar Line of <i>Puru</i> -> <i>Hasti</i> -> <i>Yavīnara</i>
R	Lunar Line of <i>Yadu</i> -> <i>Kroṣṭu</i> -> <i>Madhu</i> -> <i>Vṛṣṇi</i> -> <i>Kṛṣṇa</i>

Table 2.9
Index of All Genealogies

Gen	Year	(C) Solar Line (<i>Ikṣvāku</i>)	(E) Lunar Line (<i>Puru</i>)	(F) Lunar Line (<i>Anenā</i> at <i>Kāśī</i>)
48	-2810	<i>Vaivasvat Manu</i> (<i>f</i>) <i>Sun-god</i> , <i>Vivasvān</i>	<i>Vaivasvat Manu</i> (<i>d</i>) <i>Ilā</i>	<i>Vaivasvat Manu</i> (<i>d</i>) <i>Ilā</i>
49	-2781	<i>Ikṣvāku</i>	<i>Ilā / Sudyumna</i> (<i>h</i>) <i>Buddha</i> : (<i>f</i>) <i>Moon-god</i>	<i>Ilā / Sudyumna</i> (<i>h</i>) <i>Buddha</i> : (<i>f</i>) <i>Moon-god</i>
50	-2752	<i>Vikukṣi, Śāśāda</i>	<i>Pururavā</i> (<i>w</i>) <i>Urvaśī</i>	<i>Pururavā</i> (<i>w</i>) <i>Urvaśī</i>
51	-2723	<i>Purañjaya / Indravaha</i> / <i>Kakutstha</i>	<i>Āyu I</i> (<i>b</i>) <i>Amāvasu</i> (<i>w</i>) <i>Prabhā</i>	<i>Āyu I</i> (<i>b</i>) <i>Amāvasu</i> (<i>w</i>) <i>Prabhā</i>
52	-2694	<i>Anenā / Anaraṇya /</i> <i>Suyodhana</i>	<i>Nahuṣa</i> (<i>b</i>) <i>Anenā</i> , <i>Kṣatravṛddha</i> , <i>Rambha</i> , <i>Rajī</i>	<i>Anenā</i>
53	-2665	<i>Prthu</i>	<i>Yayāti</i> (<i>w</i>) <i>Devayānī</i> , <i>Śarmiṣṭhā</i> (<i>b</i>) <i>Yati</i>	<i>Pratikṣatra</i> (<i>n</i>) said to be son of <i>Nahuṣa</i> in <i>Garuḍa Purāṇa</i>
54	-2636	<i>Viśvarāṭ / Viśvaga /</i> <i>Viṣtarāśva</i>	<i>Puru</i> (<i>w</i>) <i>Kausalya</i> (<i>b</i>) <i>Yadu</i> , <i>Turvasu</i> , <i>Druhyu</i> , <i>Anu</i>	<i>Sṛñjaya / Sañjaya</i>
55	-2607	<i>Ārdrā / Candra / Indu</i>	<i>Janamejaya I / Suvīra</i>	<i>Vijaya</i>
56	-2578	<i>Yuvanāśva I</i>	<i>Prācīn / Prācīnvata</i>	<i>Kṛti</i>
57	-2549	<i>Śrāva / Śrāvanta /</i> <i>Vatsaka</i>	<i>Manasyu</i>	<i>Haryāśva / Vṛṣadhana</i>
58	-2520	<i>Bṛhadāśva / Śatrujit</i>	<i>Pītāyudha / Abhyada</i>	<i>Sahadeva</i>
59	-2491	<i>Kuvalāśva /</i> <i>Dhundhumāra</i>	<i>Dhundhu / Sudhanvā</i>	<i>Adīna</i>
60	-2462	<i>Dṛḍhāśva</i> (<i>b</i>) <i>Danḍa</i>	<i>Bahuvidha / Subāhu</i>	<i>Jayatsena</i>
61	-2433	<i>Pramoda</i>	<i>Samṛāti / Bahugava</i>	<i>Samṛkti</i> (<i>n</i>) he was probably childless
62	-2404	<i>Haryāśva</i>	<i>Rahamvarcha</i>	... (<i>Samṛkti</i>)
63	-2375	<i>Nikumbha</i>	<i>Bhadraśva / Raudraśva</i> (<i>w</i>) <i>Ghṛtācī</i>	<i>Kṣātradharmā</i> (<i>n</i>) likely old-age adoption
64	-2346	<i>Samhatāśva / Hitāśva /</i> <i>Bahulāśva</i>	<i>Rceyu / Auceyu / Ṙkṣa</i> (<i>w</i>) <i>Jvalnā</i> (<i>b</i>) <i>Kakṣeyu</i>	<i>Sunahotra</i>

Table 2.10
Synchronized List of Kings #Gen. 48-64

Gen	Year	(C) Solar Line (Ikṣvāku)	(E) Lunar Line (Puru)	(F) Lunar Line (Anenā at Kāśī)
65	-2317	<i>Prasenjit / Urṇāśva</i> (b) <i>Akṛtāśva</i>	<i>Matināra / Antināra /</i> <i>Ratināra / Rantibhāra</i> (w) <i>Manasvinī</i>	<i>Śala</i> (b) <i>Kāśa,</i> <i>Gr̥tsamada:</i> (s) <i>Śunaka:</i> (s) <i>Śaunaka</i>
66	-2288	<i>Yuvanāśva II</i> (w) <i>Gauri:</i> (f) <i>Matināra</i> (sil) <i>Jahnu</i>	<i>Samvīra / Tamsu</i> (w) <i>Ilini:</i> (f) <i>Kalinga's</i> <i>Janamejaya</i>	<i>Ariṣṭasena</i>
67	-2259	<i>Māndhātā</i> (w) <i>Bindumatī</i> (fil) <i>Śaśabindu</i>	<i>Ilina / Raibya / Surodha</i> / <i>Dharmanetra</i> (w) <i>Rathāntari / Upadānvi</i>	<i>Kāśya</i>
68	-2230	<i>Purukutsa</i> (b) <i>Ambarīṣa</i> & <i>Muchukunda</i> (c) <i>Mahiṣmān</i>	<i>Duṣyanta</i> (w) <i>Śakuntalā:</i> (n) raised by <i>Kaṇva:</i> (fil) <i>Māndhātā;</i> <i>Viśvāmitra</i> came later	<i>Kāśipa / Kāśika /</i> <i>Sarvasena</i> (sil) <i>Bharata</i>
69	-2201	<i>Trasadasyu / Vasuda</i> (w) <i>Narmadā</i>	<i>Bharata/ Sarvadamana</i> (w) <i>Sunandā</i> (d) of <i>Sarvasena</i> of <i>Kāśī</i>	<i>Dīrghatapa</i>
70	-2172	<i>Saṃbhūti / Saṃbhūta /</i> <i>Sambhuta</i>	<i>Bharadvāja</i>	<i>Dhanva / Dhanu</i>
71	-2143	<i>Tridhanvā</i>	<i>Vitatha</i> (b) <i>Kṣātravṛddha</i>	<i>Dhanvantari</i> (n) disciple of <i>Bharadvāja</i>
72	-2114	<i>Trayyārūṇa</i> (b?) <i>Prārūṇa</i>	<i>Bhūmanyu</i>	<i>Ketuṁāna I</i>
73	-2085	<i>Satyavrata</i>	<i>Nara</i>	<i>Bhīmaratha</i>
74	-2056	<i>Satyavratha / Triśāṅku</i> (c) <i>Viśvāmitra:</i> cannot be father of <i>Śakuntalā</i>	<i>Bṛhadkṣatra</i> (b) <i>Garga & Kapila</i>	<i>Divodāsa</i> (c) <i>Śivi</i> (s) of <i>Uśinara</i> (c) <i>Kṛtavīrya</i>
75	-2027	<i>Hariścandra /</i> <i>Triśāṅkava</i> (c) <i>Paraśurāma</i>	<i>Suhotra</i> (c) <i>Śivi</i> (n) the next 12 generations unknown	<i>Pratardana / Śatrujit</i> (c) <i>Kārtavīryārjuna</i>
76	-1998	<i>Rohita / Rohitāśva</i>	X	<i>Rtudhvaja / Vatsa /</i> <i>Kuvalayāśva</i> (w) <i>Madālasā</i>
77	-1969	<i>Vṛka / Harita</i>	X	<i>Alarka</i> (sil) <i>Vidarbha</i>
78	-1940	<i>Bāhu / Cañcu</i>	X	<i>Sammati</i> (s) <i>Sumati:</i> (h) <i>Vidarbha</i>
79	-1911	<i>Sagara / Vijaya</i> (fil) <i>Vidarbha</i>	X	<i>Sunita / Sunitha</i>

Table 2.11
Synchronized List of Kings #Gen. 65-79

Gen	Year	(C) Solar Line (Ikṣvāku)	(G) Lunar Line (Yadu, Kroṣṭu)	(F) Lunar Line (Anenā at Kāśī)
75	-2027	<i>Hariścandra,</i> <i>Traishankva</i> (c) <i>Paraśurāma</i>	<i>Kambalabharhiṣa</i> (f) <i>Marutta</i>	<i>Pratardana / Śatrujit</i> (c) <i>Kārtavīryārjuna</i>
76	-1998	<i>Rohita / Rohitāśva</i>	<i>Rukmakavaca</i>	<i>Rtudhvaja / Vatsa /</i> <i>Kuvalayāśva</i> (w) <i>Madālasā</i>
77	-1969	<i>Vṛka / Harita</i>	<i>Jyāmagha</i>	<i>Alarka (sil) Vidarbha</i> (d) <i>Sumati</i>
78	-1940	<i>Bāhu / Cañcu</i>	<i>Vidarbha</i> (w) <i>Bhojyā:</i> 13-15 years elder (n) Founded <i>Vidarbha</i>	<i>Saṁnati</i>
79	-1911	<i>Sagara / Vijaya</i> (w) <i>Sumati, Keśinī</i> (fil) <i>Vidarbha</i>	<i>Kratha</i> (b) <i>Kaiśika,</i> <i>Lomapāda</i>	<i>Sunīta / Sunītha</i>
80	-1882	<i>Asamañja / Pañcajana</i> <i>Ruru / Ruruka</i> (n) Exiled by <i>Sagara</i>	<i>Kuntī</i> (d) <i>Nandinī</i>	<i>Kṣemya / Kṣema</i>
81	-1853	<i>Amśumāna</i> (gf) <i>Sagara</i>	<i>Dhṛṣṭa</i>	<i>Ketumāna II</i>
82	-1824	<i>Dilipa I</i>	<i>Nirvṛtti</i>	<i>Suketu</i>
83	-1795	<i>Bhagīratha</i>	<i>Vidūratha</i>	<i>Dharmaketu</i>
84	-1766	<i>Nābhāga</i>	<i>Daśarha</i> (b) <i>Avanta, Viśahara</i>	<i>Satyaketu</i>
85	-1737	<i>Ambarīṣa</i>	<i>Vyomana</i>	<i>Vibhu</i>
86	-1708	<i>Sindhudvīpa</i>	<i>Jīmūta</i>	<i>Suvibhu / Ānarta</i>
87	-1679	<i>Ayutāyu / Śrutāyu /</i> <i>Ayutājit</i>	<i>Vimala / Vikala / Vikṛti</i>	<i>Sukumāra</i>
88	-1650	<i>Rūparṇa / Sudāsa</i> (lc) <i>Nala:</i> (w) <i>Damayantī</i>	<i>Bhīmaratha</i> (d) <i>Damayantī</i>	<i>Dhṛṣṭaketu</i>
89	-1621	<i>Saudāsa / Mitrasaha /</i> <i>Kalmāṣapāda</i>	<i>Navaratha</i>	<i>Vītihotra / Veṇuhotra</i>
90	-1592	<i>Sarvakarmā / Aśmaka</i>	<i>Drḍharatha</i>	<i>Bhārga</i> (n) his son expanded the rules of four Vedic Castes

Table 2.12
Synchronized List of Kings #Gen. 75-90

Gen	Year	(C) Solar Line (Ikṣvāku)	(R) Lunar Line (Yadu, Kroṣṭu, Madhu, Vṛṣṇi)	(P) Lunar Line (Puru, Mudgala)	(H) Lunar Line (Puru, Kuru)
88	-1650	<i>Rtuparṇa / Sudāsa</i> (lc) <i>Nala</i>	<i>Bhīmaratha</i> (d) <i>Damayantī</i>	<i>Hasti</i> (w) <i>Yaśodharā</i>	<i>Hasti</i> (w) Yaśodharā of Trigarta
89	-1621	<i>Saudāsa / Mitrasaha</i> / <i>Kalmāṣapāda</i>	<i>Navaratha</i>	<i>Ajamīḍha</i> (w) <i>Nilinī</i>	<i>Ajamīḍha</i> (w) <i>Dhūminī</i>
90	-1592	<i>Sarvakarmā /</i> <i>Aśmaka</i>	<i>Dṛḍharatha</i> (ds) <i>Śakuni</i>	<i>Nīla</i>	<i>Rkṣa I /</i> <i>Rkṣapāla</i>
91	-1563	<i>Anaranya / Mūlaka</i>	X	<i>Suśānti</i>	<i>Saṃvarṇa</i> (w) <i>Tāptī</i>
92	-1534	<i>Nighna / Śataratha</i>	X	<i>Purujānu /</i> <i>Purujāti</i>	<i>Kuru</i>
93	-1505	<i>Raghu / Viśvasaha</i> (b) <i>Anamitra /</i> <i>Idavīda</i>	X	<i>Pr̥thu</i>	<i>Sudhanvā</i> (b) <i>Jahnu</i>
94	-1476	<i>Dilīpa II /</i> <i>Khaṭvāṅga</i>	<i>Śakuni</i> (an) <i>Dṛḍharatha</i>	<i>Bhadraśva /</i> <i>Bāhyāśva</i>	<i>Parīkṣita II</i>
95	-1447	<i>Aja</i>	<i>Karambha</i>	<i>Mudgala</i> (b) <i>Yavīnara</i>	<i>Janamejaya II (n)</i> succession issue
96	-1418	<i>Dīrghabāhu</i>	<i>Devrāta</i>	<i>Brahmiṣṭha /</i> <i>Maudgalya</i>	<i>Suratha+</i> (an) <i>Jahnu</i>
97	-1389	<i>Ajapāla</i>	<i>Devakṣatra</i>	<i>Indrasena</i>	<i>Vidūratha</i>
98	-1360	<i>Daśaratha</i>	<i>Devana</i>	<i>Vīndhyāśva /</i> <i>Vadhyashva</i> (w) <i>Menakā</i>	<i>Sārvabhauma</i>
99	-1331	... (<i>Daśaratha</i>)	<i>Madhu /</i> <i>Vṛddhakṣatra</i>	<i>Divodāsa</i> (s) <i>Ahalyā</i>	<i>Jayatsena</i>
100	-1302	<i>Rāma</i> (n) old-age son of <i>Daśaratha</i>	<i>Purabasa</i> (b) <i>Lavaṇa</i>	<i>Mitrayu</i>	<i>Rucira</i>
101	-1273	<i>Kuśa</i>	<i>Purudvāna /</i> <i>Puruhotra</i>	<i>Maitrāyaṇa /</i> <i>Maitreya</i>	<i>Avācīna /</i> <i>Ārādhita</i>
102	-1244	<i>Atithi</i>	<i>Jantu / Āyu / Amśu</i>	<i>Caidyavara</i>	<i>Ariha</i>
103	-1215	<i>Niṣadha</i>	<i>Sāttvata, Sāttvāna</i> (w) <i>Kausalya</i>	<i>Sudāsa (n)</i> Very Learned; <i>Dāśarājña</i> war (10 Kings)	<i>Bhauma /</i> <i>Mahābhauma /</i> <i>Mahāsatva</i>

Table 2.13
Synchronized List of Kings #Gen. 88-103

Gen	Year	(C) Solar Line (Ikṣvāku)	(R) Lunar Line (Yadu, Kroṣṭu, Madhu, Vṛṣṇi)	(P) Lunar Line (Puru, Mudgala)	(H) Lunar Line (Puru, Kuru)
104	-1186	<i>Nala</i>	<i>Devavṛddha</i> (b) <i>Vṛṣṇi I</i>	<i>Soma</i>	<i>Tvaritāyu / Āyu</i> / <i>Ayutanāyi</i>
105	-1157	<i>Nabha</i>	<i>Babhru (w) – (d)</i> of <i>Kaṅka</i>	<i>Srījaya</i>	<i>Akrodhana</i>
106	-1128	<i>Puṇḍarīka</i>	<i>Bhajamāna</i>	<i>Pañcajana</i>	<i>Devātithi</i>
107	-1099	<i>Kṣemadhanvā</i>	<i>Vidūratha</i> (b) <i>Vṛṣṇi II</i>	<i>Somadatta</i>	<i>Rkṣa II, Dakṣa</i>
108	-1070	<i>Devānīka</i>	<i>Śūra</i>	<i>Sahadeva</i>	<i>Bhīmasena</i>
109	-1041	<i>Ahina / Ahinagu /</i> <i>Ahinaka</i>	<i>Śoṇāśva</i>	... (<i>Sahadeva</i>)	<i>Dilīpa</i>
110	-1012	<i>Prasuśruta</i>	<i>Śamī</i>	<i>Somaka</i> (n) old-age son	<i>Pratīra /</i> <i>Pratiśravā</i>
111	-983	<i>Susamdhī</i>	<i>Vṛṣṇi III</i> (p) <i>Gāndhārī,</i> <i>Mādrī</i>	<i>Jantu</i>	<i>Pratīpa</i>
112	-954	<i>Amarṣa</i>	<i>Devamīḍhuṣa</i> (b) <i>Anamitra</i>	... (<i>Jantu</i>)	<i>Śāntanu</i>
113	-925	<i>Sahasvāna</i>	<i>Śurasena</i> (w) <i>Bhojyā</i>	<i>Prṣṭa</i> (n) the youngest of 10	<i>Vicitravīrya</i> (b) <i>Bhīṣma</i>
114	-896	<i>Viśvabhava</i>	<i>Vasudeva</i> (b) <i>Devabhāga</i>	<i>Drupada</i> (d) <i>Draupadī</i>	<i>Pāndu</i>
115	-867	<i>Bṛhadbala</i> **	<i>Kṛṣṇa /</i> <i>Vāsudeva</i> (of <i>Vasudeva</i>) / <i>Dāśarha</i>	<i>Dhrṣṭadyumna</i>	<i>Yudhiṣṭhīra</i> (w) <i>Draupadī</i> (b) <i>Arjuna,</i> <i>Bhīmasena III</i>
116	-838	<i>Bṛhadkṣaya,</i> <i>Urukṣaya</i>	<i>Pradyumna</i>	<i>Dhrṣṭaketu</i>	... (<i>Yudhiṣṭhīra</i>)
117	-809	<i>Kṣaya</i>	<i>Aniruddha</i>	X	<i>Parīkṣit III+</i> (gf) <i>Arjuna</i>
118	-780	<i>Vatsavyuha,</i> <i>Vatsadroha</i>	<i>Vajra</i>	X	<i>Janamejaya III</i>

Table 2.14
Synchronized List of Kings #Gen. 104-118

Gen	Year	(C) Solar Line (Ikṣvāku)	(I) Lunar Line (Magadha)	(J) Lunar Line (Avantī)	(H) Lunar Line (Puru, Kuru)
115	-867	Bṛhadbala	Jarāsamīdha	Vinda / Anuvinda	Yudhiṣṭhīra (b) Arjuna
116	-838	Bṛhadkṣaya, Urukṣaya	Sahadeva	X	... (Yudhiṣṭhīra)
117	-809	Kṣaya	Somāpi / Udāyu	X	Parīkṣit III
118	-780	Vatsavyuha, Vatsadroha	Śrutaśravā / Śrutadharma	X	Janamejaya
119	-751	Prativyūha, Prativyoma	Ayutāyu / Apratīpi	X	Śatānīka I
120	-722	Divākara / Bhānu	Niramitra	X	Aśvamedhadatta
121	-693	Sahadeva	Sukṛta, Surakṣa	X	Adhisoma Kṛṣṇa
122	-664	Bṛhadāśva, Dhruvāśva	Bṛhadkarma	X	Nicakru / Nicakṣu
123	-635	Bhānuratha	Senajit	X	Vasudāna
124	-606	Kṛtañjaya, Kṛtavarmā (sil) Sahasranīka	Śrutañjaya (n) attached Avantī, made the king a minister	Mahendra Varman	Śatānīka II
125	-577	Rañejaya, Raṇañjaya	Arinjaya / Ripuñjaya (n) killed by Sunika	Jayasena / Sunika	Sahasrānīka / Sudānīka (fil) Kṛtañjaya
126	-548	Sañjaya Mahākosala	Cañḍa Pradyota+ Bhaṭṭiya/Kṣemajit+ Bimbisāra 542 BCE	Cañḍa Pradyota / Mahāsenā	Udayana 542-482 BCE
127	-519	Prasenjit (d)Vajīrā (sil) Ajātaśatru	Bimbisāra (n) 14-15 yrs. old at ascension	Pālaka 527 BC (b) Gopāla	... (Udayana)
128	-490	Viḍūḍabha / Virudhaka	Ajātaśatru 490 BCE	Avantī Vardhana	Ahinara
129	-461	Kulaka / Kṣulika	Udāyībhadra 458BC (Nandīvardhana / Aniruddha/ Muṇḍa)+	X	Danḍapāni
130	-432	Suratha	Nāgadāsaka /Darśaka 434 BCE (b) Śiśunāga+	X	Niramitra (s) Kṣemaka
131	-403	Sumitra Mahānandī+	Mahānandī/Kālāśoka / Kākavarṇa 392BCE	Mahānandī+	Mahānandī+

Table 2.15
Synchronized List of Kings #Gen. 115-131

Notice how the genealogical block of Lunar line at *Kānyakubja / Kannauj* which started from *Amāvasu* (Gen.51, 2724 BCE), a son of *Pururavā*, matches the primary genealogy of Solar line:

Gen	Year	(C) Solar Line (Ikṣvāku)	(K) Lunar Line (Kānyakubja / Kannauj)
64	-2346	<i>Saṃhatāśva / Hitāśva / Bahulāśva</i>	<i>Bhīma</i> (n) descendant of <i>Amāvasu</i>
65	-2317	<i>Prasenjit / Urṇāśva</i> (b) <i>Akṛtāśva</i>	<i>Kāñcanaprabha</i>
66	-2288	<i>Yuvanāśva II (sil) Jahnu</i> (w) <i>Gauri: (f) Matināra</i>	<i>Suhotra</i>
67	-2259	<i>Māndhātā</i> (w) <i>Bindumati, of Śaśabindus</i>	<i>Jahnu</i> (w) <i>Kāverī: (f) Yuvanāśva II</i>
68	-2230	<i>Purukutsa (w) Narmadā</i> (b) <i>Ambarīṣa & Muchukunda</i>	<i>Sunaha / Sunagha / Suhotra /</i> <i>Sumantu / Sindhudvīpa</i>
69	-2201	<i>Trasadasyu (w) Narmadā</i>	<i>Aja, Ajāka</i>
70	-2172	<i>Sambhūti / Sambhūta</i>	<i>Balākāśva</i>
71	-2143	<i>Tridhanvā / Sudhanvā</i>	<i>Kuśa / Kuśika / Vallabha</i>
72	-2114	<i>Trayyāruṇa / Prāruṇa</i>	<i>Kuśanābha (b) Kuśāmba</i>
73	-2085	<i>Satyavrata</i>	<i>Gādhi (sil) Ṛcīka</i> (d) <i>Satyavatī</i>
74	-2056	<i>Satyaratha /</i> <i>Triśaṅku</i> (c) <i>Viśvāmitra</i>	<i>Viśvāmitra (c)</i> <i>Divodāsa, Haryāśva</i> , <i>Uśinara**</i>
75	-2027	<i>Hariścandra, Traishankva</i> (c) <i>Paraśurāma</i>	<i>Asṭaka</i>
76	-1998	<i>Rohita / Rohitāśva</i>	<i>Lauhi</i>
** All 4 married a damsels <i>Mādhavī</i> for a year each, each had a son by her.			

Table 2.16
Synchronized List of Kings #Gen. 64-76

Towards the start of this block, *Yuvanāśva* II (66C) is the father-in-law of *Jahnu* (67K). Towards its end, *Satyaratha / Triśaṅku* (74C) and *Viśvāmitra* (74K) are known contemporaries. *Viśvāmitra* and *Jamadagni* were present in the *yajña* of *Hariścandra* (68C) where *Śunaśepa* (*Devarāta*) was to be sacrificed. *Paraśurāma* was also

present but as a young man. As for the damsels *Mādhavī*, she was given by *Gālava* four times, for a year each, to *Haryāśva* of *Ayodhyā*, *Divodāsa* of *Kāśī*, *Viśvāmitra* of *Kānyakubja* and *Uśīnara* to obtain as price 200 horses each with one black ear. To *Haryāśva* she begot the charitable *Vasumanā*, to *Divodāsa*, she begot the mighty *Pratardana* who crushed the *Haihayā* in battle, to *Uśīnara* she begot the famous *Śivi*, who was tested by gods *Indra* and *Dharma*, and to *Viśvāmitra* she begot *Aṣṭaka*, who was famous for performing sacrifices.

Given next is the genealogical block of the Lunar line of *Haihayā* (based nearby *Avantī/Ujjain*) that started from *Sahasrajit* (Gen.55, 2608 BCE), a son of *Yadu*, against the same block of Solar line:

Gen	Year	(C) Solar Line (Ikṣvāku)	(L) Lunar Line (Haihaya)
66	-2288	<i>Yuvanāśva II</i>	<i>Śatajit</i> (<i>n</i>) descendant of <i>Sahasrajit</i>
67	-2259	<i>Māndhātā</i>	<i>Haihaya</i> (<i>b</i>) <i>Haya</i> , <i>Veṇuhaya</i>
68	-2230	<i>Purukutsa</i> (<i>b</i>) <i>Ambarīṣa</i> , <i>Muchukunda</i>	<i>Dharmanetra</i>
69	-2201	<i>Trasadasyu</i>	<i>Kuntī</i> / <i>Kīrti</i>
70	-2172	<i>Sambhūti</i> / <i>Sambhūta</i>	<i>Sāhamjī</i> (<i>n</i>) found <i>Sāhamjani</i> city
71	-2143	<i>Tridhanvā</i> / <i>Sudhanvā</i>	<i>Mahiṣmān</i> (<i>n</i>) Snatched <i>Mucukunda</i> 's city and renamed it <i>Mahiṣmati</i>)
72	-2114	<i>Trayyārūna</i> / <i>Prārūna</i>	<i>Rudraśreṇa</i> / <i>Bhadraśreṇa</i>
73	-2085	<i>Satyavrata</i> (<i>c</i>) <i>Gādhi</i> , <i>Rcīka</i>	<i>Durdama</i>
74	-2056	<i>Satyaratha</i> / <i>Triśāṅku</i> (<i>c</i>) <i>Divodāsa</i>	<i>Kṛtavīrya</i> (<i>c</i>) <i>Divodāsa</i> (<i>n</i>) defeated by young <i>Pratardana</i> , son of <i>Divodāsa</i>
75	-2027	<i>Hariścandra</i> , <i>Traishankva</i> (<i>c</i>) <i>Aṣṭaka</i> , <i>Paraśurāma</i>	<i>Kārtavīryārjuna</i> / <i>Sahasrārjuna</i> (<i>n</i>) killed by <i>Paraśurāma</i>
76	-1998	<i>Rohita</i> / <i>Rohitāśva</i>	<i>Jayadhvaja</i> (<i>b</i>) <i>Śurasena</i> , <i>Śūra</i> , <i>Dhrṣṭa</i> , <i>Koṣṭa</i> , <i>Vaikartta</i> , <i>Avantī</i>
77	-1969	<i>Vrika</i>	<i>Tālajangha</i>
78	-1940	<i>Bāhu</i> (<i>s</i>) <i>Sagara</i>	<i>Vīthihotra</i> (<i>s</i>) <i>Ānarta</i>

Table 2.17
Synchronized List of Kings #Gen. 66-78

Similarly, the genealogical block of the Lunar line of *Kroṣṭu* (Gen.55, 2608 BCE), from *Vidarbha* to *Bhīmaratha*, matches the primary genealogy of Solar line from *Bāhu* to *Rtuparṇa / Sudāsa*. It's known that a young king *Nala* of *Niṣadha*, who had lost his kingdom in gambling to his brother, had joined the service of *Rtuparṇa* in disguise to learn gambling. So, while *Rtuparṇa* taught gambling to *Nala*, *Nala* imparted *Rtuparna* expertise in chariot handling. *Nala* was married to *Damayantī* who was the daughter of *Bhīmaratha*, a same-age contemporary of *Rtuparṇa*.

Gen	Year	(C) Solar Line (Ikṣvāku)	(G) Lunar Line (Yadu, Kroṣṭu)	(F) Lunar Line (Anenā at Kāśī)
78	-1940	<i>Bāhu</i> (w) <i>Kālindī</i>	<i>Vidarbha</i> (n) Founded <i>Vidarbha</i>	<i>Samnati</i>
79	-1911	<i>Sagara</i> (w) <i>Sumati</i> : (f) <i>Samnati</i> (w) <i>Keśini</i> : (f) <i>Vidarbha</i>	<i>Kratha</i> (b) <i>Kaiśika</i> , <i>Lomapāda</i>	<i>Sunīta</i> / <i>Sunītha</i>
80	-1882	<i>Asamañja</i> / <i>Pañcajana</i> (n) Exiled by <i>Sagara</i>	<i>Kuntī</i> (d) <i>Nandinī</i>	<i>Kṣemya</i> / <i>Kṣema</i>
81	-1853	<i>Amśumāna</i> (gf) <i>Sagara</i>	<i>Dhṛṣṭa</i>	<i>Ketumāna</i> II
82	-1824	<i>Dilīpa</i> I	<i>Nirvrtti</i>	<i>Suketu</i>
83	-1795	<i>Bhagīratha</i>	<i>Vidūratha</i>	<i>Dharmaketu</i>
84	-1766	<i>Nābhāga</i>	<i>Daśārha</i> (b) <i>Avanta</i> , <i>Viśahara</i>	<i>Satyaketu</i>
85	-1737	<i>Ambarīṣa</i>	<i>Vyomana</i>	<i>Vibhu</i>
86	-1708	<i>Sindhudvīpa</i>	<i>Jīmūta</i>	<i>Suvibhu</i> / <i>Anarta</i>
87	-1679	<i>Ayutāyu</i> / <i>Śrutāyu</i> / <i>Ayutājit</i>	<i>Vimala</i> / <i>Vikala</i> / <i>Vikṛti</i>	<i>Sukumāra</i>
88	-1650	<i>Rtuparṇa</i> / <i>Sudāsa</i> (lc) <i>Nala</i> : (w) <i>Damayantī</i>	<i>Bhīmaratha</i> (d) <i>Damayantī</i>	<i>Dhṛṣṭaketu</i>
89	-1621	<i>Saudāsa</i> / <i>Mitrasha</i> / <i>Kalmāṣapāda</i>	<i>Navaratha</i>	<i>Vītihotra</i> / <i>Veṇuhotra</i>
90	-1592	<i>Sarvakarmā</i> / <i>Aśmaka</i>	<i>Drḍharatha</i>	<i>Bhārga</i>

Table 2.18
Synchronized List of Kings #Gen. 78-90

Also notice the **Early Lunar Line of Kroṣṭu** (Gen.55, 2608 BCE), a son of *Yadu*, that finally gave rise to *Kṛṣṇa*. Here, *Śāśabindu* (66_) is anchored a generation before his son-in-law *Māndhātā* (67C) and, similarly, *Vidarbha* a generation before *Sagara* (79C):

Gen	Year	(C) Solar Line (Ikṣvāku)	(G) Lunar Line (Yadu, Kroṣṭu)
62	-2404	<i>Haryāśva</i>	<i>Vrijjinvana</i> (an) <i>Kroṣṭu</i>
63	-2375	<i>Nikumbha</i>	<i>Śvahi / Svahi</i>
64	-2346	<i>Sanḥatāśva / Hitāśva / Bahulāśva</i>	<i>Ruṣāṅga / Ruṣānku / Ruṣeku</i>
65	-2317	<i>Prasenjit / Urṇāśva (b) Akṛtāśva</i>	<i>Citraratha</i>
66	-2288	<i>Yuvanāśva II (sil) Jahnu</i> (w) <i>Gauri: (f) Matināra</i>	<i>Śāśabindu (sil) Māndhātā</i> (n) many wives and children
67	-2259	<i>Māndhātā</i> (w) <i>Bindumatī (fil) Śāśabindu</i>	X (n) lot of <i>Pr̥thu</i> brothers
68	-2230	<i>Purukutsa (w) Narmadā</i> (b) <i>Ambarīṣa & Muchukunda</i>	X
69	-2201	<i>Trasadasyu (w) Narmadā</i>	X
70	-2172	<i>Sambhūti / Sambhūta</i>	<i>Pr̥thuśravā</i>
71	-2143	<i>Tridhanvā / Sudhanvā</i>	<i>Tama / Pr̥thusattama</i>
72	-2114	<i>Trayyāruna / Prāruna</i>	<i>Uṣṇa / Uṣanā / Ushata</i>
73	-2085	<i>Satyavrata</i>	<i>Titikṣu / Sineyu / Śitagū</i>
74	-2056	<i>Satyaratha / Triśanku</i> (c) <i>Viśvāmitra</i>	<i>Marutta</i>
75	-2027	<i>Hariścandra, Traishankva</i> (c) <i>Paraśurāma</i>	<i>Kambalabarhiṣa</i>
76	-1998	<i>Rohita / Rohitāśva</i>	<i>Rukmakavaca</i>
77	-1969	<i>Vṛka / Harita</i>	<i>Jyāmagha</i>
78	-1940	<i>Bāhu / Cañcu</i>	<i>Vidarbha (w) Bhojyā: 13-15 years</i> <i>elder (n) Founded Vidarbha</i>
79	-1911	<i>Sagara / Vijaya</i> (w) <i>Sumati: (f) Saṃnati</i> (w) <i>Keśinī: (f) Vidarbha</i>	<i>Kratha (b) Kaiśika, Lomapāda</i>

Table 2.19
Synchronized List of Kings #Gen. 62-79

Next, notice the **Lunar Line of Kakṣeyu** (Gen.64, 2347 BCE), a son of *Raudraśva*, that gave rise to kings such as *Titikṣu*, *Uśinara*, *Śivi*, *Nrga* and *Bali*. The 3 north-western kingdoms of *Kaikeya*, *Madraka* and *Suvīra* were established by the 3 sons of *Śivi*, of the same names. *Yaudheyā* was established nearby by the son of *Nrga*, a brother of *Śivi*. The eastern kingdoms of *Aṅga*, *Vaṅga*, *Kaliṅga*, *Suhya*, *Puṇḍra* and *Āndhra* were established by the sons of *Bali*.

Gen	Year	(C) Solar Line (Ikṣvāku)	(M) Lunar Line (Kakṣeyu)	(F) Lunar Line (Anenā at Kāśī)
64	-2346	<i>Samḥatāśva / Hitāśva / Bahulāśva</i>	<i>Kakṣeyu</i> (b) <i>Rceyu</i> (f) <i>Bhadraśva</i> (63E)	<i>Sunahotra</i>
65	-2317	<i>Prasenjit / Urnāśva</i> (b) <i>Akṛtāśva</i>	<i>Sābhānara</i>	<i>Śala</i> (b) <i>Kāśa</i> , <i>Gr̥tsamada</i> : (s) <i>Śunaka</i> : (s) <i>Śaunaka</i>
66	-2288	<i>Yuwanāśva II (sil)</i> <i>Jahnu</i> (w) <i>Gauri</i> : (f) <i>Matināra</i>	<i>Cakṣuṣa</i>	<i>Ariṣṭasena</i>
67	-2259	<i>Māndhātā</i> (fil) <i>Śāśabindu</i>	<i>Paramanyu</i>	<i>Kāśya</i>
68	-2230	<i>Purukutsa</i> (w) <i>Narmadā</i> (b) <i>Ambarīṣa</i> & <i>Muchukunda</i>	<i>Kālānala / Kolāhala</i>	<i>Kāśipa / Kāśika /</i> <i>Sarvasena</i> (sil) <i>Bharata</i>
69	-2201	<i>Trasadasyu</i> (w) <i>Narmadā</i>	<i>Śrñjaya / Sañjaya</i>	<i>Dīrghatapa</i>
70	-2172	<i>Sambhūti / Sambhūta</i>	<i>Purañjaya</i>	<i>Dhanva / Dhanu</i>
71	-2143	<i>Tridhanvā / Sudhanvā</i>	<i>Janamejaya</i>	<i>Dhanvantari</i> (n) disciple of <i>Bharadvāja</i>
72	-2114	<i>Trayyāruṇa / Prāruna</i>	<i>Mahashala</i>	<i>Ketumāna I</i>
73	-2085	<i>Satyavrata</i>	<i>Mahamana</i>	<i>Bhīmaratha</i>
74	-2056	<i>Satyaratha / Triśāṅku</i> (c) <i>Viśvāmitra</i>	<i>Uśinara</i> (b) <i>Titikṣu</i> (w) <i>Mādhavī, Dṛṣadvatī</i> (c) <i>Kṛtavīrya</i>	<i>Divodāsa</i>
75	-2027	<i>Hariścandra</i> (c) <i>Paraśurāma</i>	<i>Śivi</i> (b) <i>Nrga, Kṛni,</i> <i>Nava, Suvrata</i>	<i>Pratardana / Śatrujit</i> (c) <i>Kārtavīryārjuna</i>
76	-1998	<i>Rohita / Rohitāśva</i>	<i>Kaikeya</i> (b) <i>Madraka</i> , <i>Suvīra, Vṛṣādarbha</i>	<i>Rtudhvaja / Vatsa /</i> <i>Kuvalayāśva</i>

Table 2.20
Synchronized List of Kings #Gen. 64-76

Given below is the line of *Titikṣu* that originated in the line of *Kakṣeyu* and continued in *Aṅga* up to *Prthusena* (Gen.117, 810 BCE), the grandson of *Karṇa*, the famous of *Māhābhārata* warrior. *Prthusena* was the last recorded king of this line at *Aṅga*.

Gen	Year	(N) Lunar Line (<i>Aṅga</i>)	Gen	Year	(N) Lunar Line (<i>Aṅga</i>)
74	-2056	<i>Titikṣu</i> (<i>b</i>) <i>Uśinara</i> (74M)	78	-1940	<i>Bali</i> (<i>n</i>) a rebirth of <i>Bali</i>
75	-2027	<i>Vṛṣadvathā</i> / <i>Ushadratha</i> / <i>Rudraratha</i>	79	-1911	<i>Aṅga I</i> (<i>b</i>) <i>Vaṅga</i> , <i>Kaliṅga</i> , <i>Suhya</i> , <i>Puṇḍra</i> , <i>Āndhra</i>
76	-1998	<i>Fena</i> / <i>Sena</i>	80	-1882	<i>Dadhibhāna</i> (<i>ds</i>) <i>Diviratha</i>
77	-1969	<i>Sutapā</i>	81	-1853	X

<(n) 13 Generations missing (Gen.81-93)>

94	-1476	<i>Diviratha</i> (<i>an</i>) <i>Dadhibhāna</i>	106	-1128	<i>Haryāṅga</i> / <i>Haryākṣa</i>
95	-1447	<i>Dharmaratha</i>	107	-1099	<i>Bhadraratha</i>
96	-1418	<i>Citraratha</i>	108	-1070	<i>Brhadkarmā</i>
97	-1389	<i>Satyaratha</i>	109	-1041	<i>Brhadbhānu</i>
98	-1360	<i>Romapāda</i> (<i>d</i>) <i>Śāntā</i> (<i>sil</i>) <i>Rṣyaśrīga</i> (<i>c</i>) <i>Daśaratha</i> (98C)	110	-1012	<i>Bṛhanmanā</i> (<i>w</i>) <i>Yaśodevī</i> , <i>Satyā</i>
99	-1331	<i>Caturanga</i> (<i>n</i>) born with blessings of <i>Rṣyaśrīga</i>	111	-983	<i>Jayadratha</i> (<i>m</i>) <i>Yaśodevī</i>
100	-1302	<i>Prthulākṣa</i>	112	-954	<i>Brhadratha</i>
101	-1273	<i>Campa</i> (<i>n</i>) overtook the city <i>Mālinī</i> , renamed it <i>Campā</i>	113	-925	<i>Janamejaya</i>
102	-1244	X	114	-896	<i>Aṅga II</i>
103	-1215	X	115	-867	<i>Karna+</i>
104	-1186	X	116	-838	<i>Vṛṣasena</i>
105	-1157	X	117	-809	<i>Prthusena</i>

Table 2.21
Synchronized List of Kings #Gen. 74-117

Similarly, at *Magadha*, a kingdom adjacent to *Aṅga*, the Lunar Line of *Puru* that gave rise to *Jarāśamdhā*, through *Puru*, *Hasti*, *Kuru* and *Bṛhadratha*, can be so reconstructed:

Gen	Year	(I) Lunar Line (<i>Magadha</i>)	Gen	Year	(I) Lunar Line (<i>Magadha</i>)
92	-1534	<i>Kuru</i> (92H)	104	-1186	X
93	-1505	<i>Sudhanvā</i>	105	-1157	X
94	-1476	<i>Suhotra</i>	106	-1128	X
95	-1447	<i>Matimāna</i>	107	-1099	<i>Kuśagra</i>
96	-1418	<i>Cyavana</i>	108	-1070	<i>Vṛṣabha</i>
97	-1389	<i>Kṛtayajña / Krmī</i>	109	-1041	<i>Punyavāna / Puṣpavāna</i>
98	-1360	<i>Caidya Paricara / Uparicara Vasu</i>	110	-1012	<i>Punya</i>
99	-1331	<i>Bṛhadratha I</i>	111	-983	<i>Satyadhṛti / Satyahita</i>
100	-1302	X	112	-954	<i>Dhanuṣa</i>
101	-1273	X	113	-925	<i>Sarva / Urja</i>
102	-1244	X	114	-896	<i>Samabhāva / Bṛhadratha II</i>
103	-1215	X	115	-867	<i>Jarāśamdhā</i>

Table 2.22
Synchronized List of Kings #Gen. 92-115

For the main Lunar Line of *Puru*, we are missing 12 generations from after *Suhotra* (75E) to *Hasti* (88P), the father of *Ajamīḍha*. As *Suhotra* seems to be a contemporary of *Śivi*, it's rightly recounted in the *Purāṇā* that both had saluted each other when they once met. It's also known that *Śivi* hid his sons in forest in fear of *Paraśurāma* who was intent on killing all *Kṣatriya* kings spare a few. So, similarly, the sons of *Suhotra* must have left *Pratiṣṭhāna* (modern day Allahabad) under the fear of *Paraśurāmā*. After being elsewhere (Indus Valley?) for 12 generations, their descendant *Hasti* found *Hastināpura* on the west bank of river *Gaṅgā*, up north in a location far-away from *Pratiṣṭhāna* but quite close to the earliest regions of the *Āryā*.

In one of the four lines that issued from *Ajamīḍha* existed the king *Divodāsa*¹⁰⁸, the brother of lady *Ahalyā* who was cursed by her husband *Gautama* and delivered from her curse by *Rāma*. So, the time of *Hasti* and *Ajamīḍha* can be back calculated quite accurately by anchoring this *Divodāsa* a generation before *Rāma*. The time of *Hasti* and *Ajamīḍha* thus calculated is validated by all the four lines of *Ajamīḍha* matching up and extending to the *Mahābhārata* times.

Gen	Year	(H) Lunar Line (Puru, Kuru)	(O) Lunar Line (Puru, Nīpa)	(P) Lunar Line (Puru, Mudgala)	(Q) Lunar Line (Puru, Yavīnara)
88	-1650	<i>Hasti (au) Suhotra</i>			
89	-1621	<i>Ajamīḍha</i> (w) <i>Dhūminī, Bhūminī, Nīlinī</i> (w) <i>Keśinī</i> : (s) <i>Kaṇva</i> (gs) <i>Medhātithi</i>			
90	-1592	<i>Rkṣa I</i> (m) <i>Dhūminī</i>	<i>Bṛhadanu</i> (m) <i>Bhūminī</i>		<i>Nīla</i> (m) <i>Nilinī</i>
91	-1563	<i>Samvarṇa</i> (w) <i>Tāptī</i>	<i>Bṛhanta</i>		<i>Suśānti</i>
92	-1534	<i>Kuru</i> (w) <i>Vāhini, Śubhāṅgi</i>	<i>Bṛhanmanā</i>		<i>Puruṣānu / Purujāti</i>
93	-1505	<i>Sudhanvā</i> (b) <i>Jahnu</i>	<i>Bṛhaddhanu</i>		<i>Prthu</i>
94	-1476	<i>Parīkṣita II</i>	<i>Bṛhadiśu</i>	<i>Bhadraśva / Bāhyāśva</i> (n) his sons known as 5 <i>Pāñcālā</i>	
95	-1447	<i>Janamejaya II</i>	<i>Jayadratha</i>	<i>Mudgala</i>	<i>Yavīnara</i>
96	-1418	<i>Suratha+</i> (an) <i>Jahnu</i>	<i>Aśvajit</i>	<i>Maudgalya / Brahmiṣṭha</i>	<i>Dhṛtimāna</i>
97	-1389	<i>Vidūratha</i>	<i>Senajit</i>	<i>Indrasena</i>	<i>Satyadhṛti</i>
98	-1360	<i>Sārvabhauma</i>	<i>Rucirāśva</i>	<i>Vindhyaśva / Vadhyāśva</i> (w) <i>Menakā</i>	<i>Dṛḍhanemi</i>

¹⁰⁸ *Ahalyā*, the Sister of *Divodāsa*, was married to sage *Gautama*. Her son *Śatānanda* was a family-priest with *Sīradhvaja Janaka*, the father-in-law of *Rāma*. So, both *Ahalyā* and her brother *Divodāsa* existed in the generation before *Rāma*. Another *Śatānanda* was the father of *Kṛpācārya* and *Kṛpī* who existed nearly 420 years later during the *Mahābhārata* period.

Gen	Year	(H) Lunar Line (Puru, Kuru)	(O) Lunar Line (Puru, Nīpa)	(P) Lunar Line (Puru, Mudgala)	(Q) Lunar Line (Puru, Yavīnara)
99	-1331	Jayatsena	Pr̥thusena	<i>Dīvodāsa</i> (sis) <i>Ahalyā</i> (lc) <i>Rāma</i>	Sudharma
100	-1302	Rucira	Paura	Mitrayu	Sārvabhauma
101	-1273	Ārādhi / Avācina	Nīpa (n) many sons: Nīpā	Maitrāyaṇa / Maitreya	X
102	-1244	Ariha	X (n) some Nīpā	Caidyavara	X
103	-1215	Bhauma / Mahābhauma / Mahāsatva	Kīrti Vardhana (n) son of one of the Nīpā	<i>Sudāsa</i> (n) Very Learned; 10- Dāśarājña war	X
104	-1186	Tvaritāyu / Āyu / Ayutanāyi	Kāvya	Soma	X
105	-1157	Akrodhana	Samara	Sṛñjaya	<i>Mahati</i> (an) Sārvabhauma
106	-1128	Devātithi	Pāra	Pañcajana	<i>Mahāpaurava</i>
107	-1099	Dakṣa / Rkṣa II	Pr̥thu	Somadatta	Rukmaratha
108	-1070	Bhīmasena II	Sukṛta	Sahadeva	Supārshva
109	-1041	Dilīpa	Vibharāja (w) Kṛti of Śuka	... (Sahadeva)	Sumati
110	-1012	Pratīra / Pratiśravā	Asūha / Añuha (w) Sañmati of Asita Devala	Somaka (n) old age son	Sañnatimāna
111	-983	Pratīpa	Brahmadatta	Jantu	Kṛta
112	-954	Śāntanu	Yugadutta	... (Jantu)	Ugrāyuddha
113	-925	Vicitravīrya (b) Bhīṣma	Viśvakasena	Pr̥ṣṭa (n) youngest of 10 brothers	Kṣema / Kṣemya
114	-896	Pāndu	Udaksena / Danḍasena	Drupada (sil) Yudhiṣṭhīra and 4 brothers	Sunītha / Suvīra
115	-867	Yudhiṣṭhīra (b) Bhīmasena III (fil) Drupada	Bhallāta (n) killed by Karṇa	Dhṛṣṭadyumna	Nṛpañjaya
116	-838	... (Yudhiṣṭhīra)	Janamejaya (s) Ugrāyuddha	Dhṛṣṭaketu	Viratha / Bahuratha

Table 2.23
Synchronized List of Kings #Gen. 88-116

Bhiṣma (at 113H) has mentioned in the *Mahābhārata* that:

- At the death of his father *Sāntanu* (112H), *Ugrāyuddha* (112Q) demanded for himself his step-mother *Kālī/Satyavatī* (widow of *Sāntanu*), for which *Bhiṣma* killed him. It can be noticed that *Ugrāyuddha* falls in the previous generation of *Bhiṣma*.
- *Brahmadatta* (111O), whose account was narrated to him by sage *Mārkandeya*, was contemporary to his grandfather *Pratīpa* (111H). This also can be noticed to be true.

The Battle of Ten Kings known as the *Dāśarājña* war, as also mentioned in the *Rgveda*, was fought on the banks of *Paruṣāṇī* River (now *Rāvī*) by *Sudāsa* (103P, 1216 BCE), the great great grandson of *Divodāsa*, who defeated 10 united kings of this region.

Note: *Viśvāmitra* (74K), the son of *Gādhi*, could not have been the father of *Śakuntalā*, the wife of *Dusyanta* (68E, 2231 BCE); his fathering *Śakuntalā* on *Menakā* was largely an idea of *Kālidāsa*. *Dusyanta* was also adopted as a religious son by an old *Karandhama*, a descendent of *Turvasu* (Gen.54) (*Garbha* > *Gobhānu* > *Trisāri* > *Karandhama*), for begetting a heir; *Varūtha* (Gen.69) was thus handed over to *Karandhama* as his grandson. The four sons of *Varūtha* (*Pāṇḍya*, *Kerala*, *Cola* and *Karṇa*) populated the south Indian regions. All of south Indians (*Dravidā*) being called the *Rākṣasā*, as against the north Indians (supposedly all *Āryā*), is a handiwork of Imperial Historians who wanted to create a divide. All physical distinctions between men are a result of their environmental conditions, men in mountains grow short, men in harsh Sun turn black, men in cold windy regions grow small eyes.

2.4 *Rāmā�ana* Period

As *Rāma* was born at the very end (in the last year) of 24th *Tretā-Yuga*, his birth took place in 1331 BCE, this was also 504 years (4*120 +36+24-1) before the *Mahābhārata* war that occurred in last year of 28th *Dvāpara-Yuga* (827 BCE). See the diagram given below:

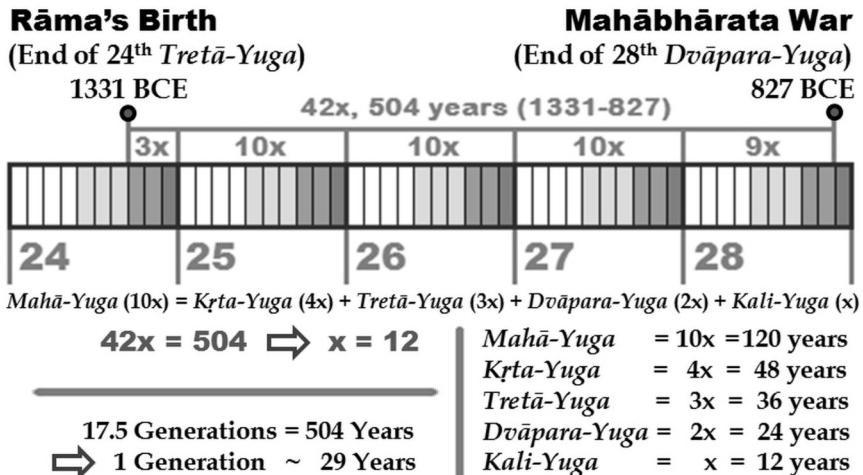


Figure 2.3
Inter-relationship of *Rāmāyaṇa* and *Mahābhārata*

It is known from the *Mahābhārata* text that an old *Bṛhadbala*, the king of *Kosala* (*Ayodhyā*) and a descendent of *Rāma*, was killed in the *Mahābhārata* war by *Abhimanyu*, the son of *Arjuna*. So, *Bṛhadbala* belonged to the same generation as that of *Yudhiṣṭhira* and *Arjuna* and must have been about 60-70 years old, (the same age as them) at the time of war in 827 BCE. So, his generation time (30th year) would start in 867 BCE, 40 years before the *Mahābhārata* war. As the generation time of *Rāma* started in 1303 BCE, his time lay 15 generations ((1303-867+1)/29) before that of *Bṛhadbala*. But we find that some *Purāṇa* list some 25-28 kings from *Rāma* to *Bṛhadbala*. This is on account of a mix-up¹⁰⁹ already explained previously in section 2.3.1. The *Matsya Purāṇa* gives the most accurate genealogies in most parts such as 17 generations of Lunar Line (*Yadu/Kroṣṭu*) from *Madhu* to *Kṛṣṇa* and 17 generations of Solar Line from after *Daśaratha* (father of *Rāma*) to *Śrutāyu* (killed in *Bhārata* war, cousin *Bṛhadbala*) through *Ahinagu*. As *Madhu* is a late contemporary of *Daśaratha*¹¹⁰ at the beginning of this block

¹⁰⁹ The most genealogical lists of the *Purāṇa* are accurate and complete only in some segmented blocks.

¹¹⁰ *Daśaratha* was aged 70 when *Rāma* was 15: a 2 generation difference.

and *Śrūtāyu* and *Kṛṣṇa* are contemporaries towards its end, this genealogical block of 17 generations stands self-validated, in its years as well as in its number of generations:

Gen	Year	(C) Solar Line (<i>Ayodhyā</i>)	(R) Lunar Line (<i>Madhu</i>)
99	-1331	... (<i>Daśaratha</i>)	<i>Madhu</i> , <i>Vṛddhakṣatra</i> (w) <i>Vaidarbī</i>
100	-1302	<i>Rāma</i> (n) old-age son of <i>Daśaratha</i> , born 1331 BCE	<i>Purabasa</i> , <i>Marubasa</i> (b) <i>Lavanya</i> , from <i>Kumbhīnasī</i> , a <i>Rāksasa</i> girl
101	-1273	<i>Kuśa</i>	<i>Purudvāna</i> , <i>Puruhotra</i> (w) <i>Vaidarbī Bhadravatī</i>
102	-1244	<i>Atithi</i>	<i>Jantu</i> , <i>Āyu</i> , <i>Amśu</i> (w) <i>Aikṣavākī</i>
103	-1215	<i>Niṣadha</i>	<i>Sāttvata</i> (w) <i>Kausalya</i> (n) reclaimed Mathura
104	-1186	<i>Nala</i>	<i>Devavriddha</i> (w) <i>Parṇāśā</i>
105	-1157	<i>Nabha</i>	<i>Babhru</i> (w): (d) of <i>Kanaka</i>
106	-1128	<i>Puṇḍarīka</i>	<i>Bhajamāna</i> (b) <i>Vṛṣṇi I</i> , <i>Kukura</i> , <i>Kambalabarhiṣa</i> , <i>Andhaka</i> , <i>Mahābhoja</i> , <i>Bhajīn</i> , <i>Divyam</i> , <i>Śāsi</i>
107	-1099	<i>Kṣemadhanvā</i>	<i>Vidūratha</i> (cb) <i>Vṛṣṇi II</i> , son of <i>Kukura</i>
108	-1070	<i>Devānīka</i>	<i>Śūra</i>
109	-1041	<i>Ahinagu</i> / <i>Ahinaka</i> / <i>Ahina</i>	<i>Śoṇāśva</i>
110	-1012	<i>Prasuśruta</i>	<i>Śamī</i> / <i>Śani</i>
111	-983	<i>Susāṃdhī</i>	<i>Vṛṣṇi III</i> (w) <i>Gāndhārī</i> , <i>Mādrī</i>
112	-954	<i>Amarṣa</i>	<i>Devamīḍhuṣa</i> (b) <i>Anamitra</i>
113	-925	<i>Sahasvāna</i>	<i>Candrāgiri</i>
114	-896	<i>Viśvabhava</i>	<i>Surasena</i> (w) <i>Bhojyā</i>
115	-867	<i>Br̥hadbala</i> **	<i>Śrūtāyu**</i>
** Both <i>Br̥hadbala</i> & <i>Śrūtāyu</i> were killed in the <i>Mahābhārata</i> war.			

Table 2.24

Kings of Solar Line and Lunar Line (of *Vṛṣṇi*) #Gen. 99-115

Lavaṇa was the son of *Madhu* from a *Rākṣasa* girl *Kumbhīnasi*, who was a sister of *Śūrpanakhā* and *Rāvaṇa*. After *Rāvaṇa* was killed by *Rāma*, *Lavaṇa* had sent a fight challenge to *Rāma* and was killed by *Śatrughna* in return, a younger brother of *Rāma*¹¹¹. From *Rāma* to *Ahinagu*, all *Purāṇa* correctly give 10 names but from *Ahinagu* to the time of *Mahābhārata* war, only the *Matsya Purāṇa* correctly gives 7 generations up to *Śrutāyu* while the other *Purāṇa* incorrectly give 15-20 names up to *Bṛhadbala*, which have been explained previously in section 2.3.1. Now, it's known from *Mahābhārata* text that *Bṛhadbala* of *Kosala*, fell in the *Bhārata war*. Interestingly enough, *Matsya* tells us that *Śrutāyu* of *Kosala* also fell in the *Bhārata war*¹¹². So, clearly *Śrutāyu* was a cousin of *Bṛhadbala* who ruled a division of *Kosala* and participated in the *Mahābhārata* war along with *Bṛhadbala* where both of them were killed.

As the lineage of *Kṛṣṇa* is related, let's take it up here itself. It can be noticed that the genealogy of *Kṛṣṇa* provided in the *Matsya Purāṇa* (Chapter 21) seem to be quite correct while the one given in the *Viṣṇu Purāṇa* goes completely awry about *Bhajamāna*¹¹³. Almost all the clansmen of *Kṛṣṇa* listed in *Mahābhārata* are descended of *Babhru* (105R, 1158 BCE) as their first common ancestor. It can be noticed from the previous table that *Babhru*, belonging to the Lunar line of *Yadu*, *Kroṣṭu* and *Madhu*, had many famous sons by the names of *Bhajamāna*, *Vṛṣṇi* I, *Kukura*, *Kambalubarhiśa*, *Andhaka*, *Mahābhoja*, *Bhajīn*, *Divyam* and *Śāsi*.

¹¹¹ माधवं लवणं हत्वा गत्वा मधुवनं च तत् ।

श्रुत्वेन पुरी तत्र मथुरा विनिवेशितः ॥ BDP 2.63.186

Śatrughna, much against his wish of staying with *Rāma*, was ordered by *Rāma* to settle down in *Madhuvana* (present day Mathura) that was so captured from *Lavaṇa*. *Sāttvata*, in 4th generation from *Lavaṇa*, is said to have reclaimed Mathura.

¹¹² तस्य आत्मजः चन्द्रगिरिः भानुचन्द्रः ततोऽभवत् ।

श्रुतायुः अभवत् तस्माद् भारते यो निपातितः ॥ MP 11.55

¹¹³ It may be the relatively high popularity of *Viṣṇu Purāṇa* which led to the contamination of its genealogies.

Gen	Year	Lunar Line (<i>Kamsa</i>)		Lunar Line (<i>Kṛṣṇa</i>)	
105	-1157	<i>Babhrū (w): (d) of Kaṅka</i>		<i>Babhrū (w): (d) of Kaṅka</i>	
106	-1128	Kukura		Bhajamāna	
107	-1099	<i>Vṛṣṇi II</i>		<i>Vidūratha</i>	
108	-1070	<i>Dhṛti</i>		<i>Śūra</i>	
109	-1041	<i>Kapotaromā</i>		<i>Śoṇāśva</i>	
110	-1012	<i>Taittirī</i>		<i>Śamī / Śani</i>	
111	-983	<i>Punarvasu</i>		<i>Vṛṣṇi III (w) Gāndhārī, Mādrī</i>	
112	-954	<i>Āhuka</i>		<i>Devamīḍhuṣa (b) Anamitra</i>	
113	-925	<i>Ugrasena</i>	<i>Devaka</i>	<i>Śurasena (w) Bhojyā</i>	
114	-896	<i>Kamsa (n) killed by Kṛṣṇa</i>	<i>Devavān (sis) Devakī: (s) Kṛṣṇa</i>	<i>Vasudeva (w) Devakī</i>	<i>Devabhāga (b) Vasudeva</i>
115	-867	X	X	<i>Kṛṣṇa (m) Devakī</i>	<i>Uddhava</i>

Table 2.25
Lunar Line of *Yadu/Kroṣṭu* #Gen. 105-115

Others of the *Kṛṣṇa* family, such as *Uddhava* / *Akrūra* / *Kṛtavarmā* / *Sātyaki* / *Prasena* / *Satrājita*, have *Śamī* / *Śani* (Gen.110) as their first common ancestor, as highlighted in the following two tables.

Gen	Year	Lunar Line (<i>Kṛṣṇa/Uddhava</i>)		Lunar Line (<i>Akrūra</i>)	Lunar Line (<i>Kṛtavarmā</i>)
110	-1012			<i>Śamī / Śani</i>	
111	-983	<i>Vṛṣṇi III (b) Pratikṣatra (p) Gāndhārī, Mādrī</i>		<i>Pratikṣatra</i>	
112	-954	<i>Devamīḍhuṣa (b) Anamitra</i>		<i>Pratikṣetra</i>	
113	-925	<i>Śurasena</i>		<i>Yuddhājīt</i>	<i>Bhoja</i>
114	-896	<i>Vasudeva</i>	<i>Devabhāga</i>	<i>Jayanta</i>	<i>Hradīka</i>
115	-867	<i>Kṛṣṇa</i>	<i>Uddhava</i>	<i>Akrūra</i>	<i>Kṛtavarmā (b) Śatadhanvā</i>

Table 2.26
Lunar Line of *Yadu/Kroṣṭu* #Gen. 110-115

Gen	Year	Lunar Line (Kṛṣṇa)	Lunar Line (Sātyaki)	Lunar Line (Prasena)
110	-1012			Śamī / Śani
111	-983			Vṛṣṇi III
112	-954	<i>Devamīḍhuṣa</i>		<i>Anamitra</i> (b) <i>Devamīḍhuṣa</i>
113	-925	Śurasena	Śini	Nighna
114	-896	Vasudeva	Satyavāna (b) Yuyudhāna	<i>Satrājita</i> (b) <i>Prasena</i> (d) <i>Satyabhāmā</i>
115	-867	Kṛṣṇa (w) <i>Satyabhāmā</i>	Sātyaki	Bhaṅgakāra (b) Vātapati, Vasumēdha

Table 2.27
Lunar Line of *Yadu/Kroṣṭu* #Gen. 110-115

Uddhava, who bore a great resemblance to his cousin *Kṛṣṇa* and who was highly devoted to him, ultimately became a *Yogi*. The jewel *Sayamāntaka* was given by the Sun god to *Satrājita*, who gave it to his younger brother *Prasena* who, being killed by a lion, went amiss. Because *Kṛṣṇa* had earlier demanded it for the king, it was rumored that *Kṛṣṇa* murdered him. To avoid disrepute, *Kṛṣṇa*, along with other *Vṛṣṇi*, located the half-eaten body of *Prasena* in the forest. *Kṛṣṇa* recovered the jewel and restored it to *Satrājita* who then married his daughter *Satyabhāmā* to him. *Śatadhanvā*, in connivance with his brother *Kṛtavarmā*, craftily killed *Satrājita* for the jewel but he himself was killed by *Kṛṣṇa* who finally restored the jewel to the old king. *Kṛtavarmā*, like most *Vṛṣṇi*, fought on the side of *Kauravā* and was killed by *Sātyaki*, the constant companion of *Kṛṣṇa*, during the *Dvārakā* Civil Massacre in 809 BCE.

2.5 *Mahābhārata* Period

Let's now discuss the period from after the *Mahābhārata* war (827 BCE, as established in another chapter) to the time of Buddha and the *Pāṇḍava* king *Udayana* of *Kauśāmbī* (563 BCE). Before doing that, let's also briefly discuss the origin of *Kṛta/Mālava* era.

The *Kṛta/Mālava* Era that is thought to be identical with the *Vikrama* era of 57 BCE is actually quite distinct from it and its epoch year is 94 BCE. It'll be explained ahead that *Harṣa Vardhana* (*Vikramāditya*) found the *Vikrama* era only in 598 CE and not in 57 BCE. It should be known that there was great confusion regarding the actual time spans of *Mahā-Yugā* after the *Mahābhārata* war in 827 BCE. The 29th *Mahā-Yuga* that actually started in 814 BCE, 13 years later of *Mahābhārata* war, was never recognized, as no reference later of 28th *Mahā-Yuga* is to be found anywhere. But, sometime before 94 BCE, some learned *Brahmin* took stock of the situation and correctly calculated that the year 94 BCE was to be the first year of (35th) *Mahā-Yuga* and the (35th) *Kṛta-Yuga*. This was the time when the *Śuṅga* ruler *Vasumitra*, grandson of *Puṣyamitra*, was ruling both *Ujjain* and *Magadha* and as *Vasumitra* must have been advised in this regard, it was he who started the *Kṛta/Mālava* Era in *Ujjain*. As the *Mahā-Yuga* was then thought to be of 12,000 years and *Kali-Yuga* of 1200 years, the *Sūtā*¹¹⁴ of his time surmised that the *Kali-Yuga* started in 1294 BCE, 1200 years before 94 BCE, and that the *Mahābhārata* war occurred in 1330 BCE, 36 years before 1294 BCE. But as the *Mahābhārata* war actually occurred in 827 BCE, there were only 12 documented kings from the first ascension of *Yudhiṣṭhīra* (40 years before the *Mahābhārata* war) up to the ascension of *Udayana* in 542 BCE:

- In the Lunar Line: *Yudhiṣṭhīra* up to *Udayana*, the *Pāñdava* king who was an age-equal of *Buddha* and who started ruling *Kauśāmbī* (*Vatsa* kingdom) in 542 BCE at an age of 21 years
- In the Solar Line: from *Bṛhadbala* to *Sañjaya Mahākosala*
- At *Magadha*: from *Jarāsamdhā* to *Bimbisāra*

This supposition on their part presented the difficulty of justifying 12 kings over an imaginary span of 828 years (1330+40-542), rather

¹¹⁴ Families of the Charioteer class who have traditionally had in their possession the original *Purāṇa Saṃhitā* compiled by the great sage *Ved Vyāsa* and who split it up in the various *Purāṇā* available today.

than over the actual span of 325 years (827+40-542), as it amounted to an impossible average reign period of ~69 years (828/12). The *Sūtā* deliberated over this and concluded that some 503 years (1330-827) of historical records were lost during the time of *Hastināpura* Floods¹¹⁵ of ~642 BCE. By way of reconciliation for this imaginary loss of 503 year period, some 13/14 fictitious names (at 34/36 year average) were inserted in the Puranic genealogies of Solar, Lunar and *Magadha* kings about the time of these floods. **These interjections in the *Purāṇa* genealogies, from after the *Mahābhārata* period, become quite obvious when we accept the names stated in the past tense and reject/isolate the names stated in the future tense**¹¹⁶. The *Purāṇa* accounts of this time cannot be trusted unless until in conformity with the Jain/Buddhist accounts because, as most kings converted to Jainism and Buddhism, the *Sūtā* and Brahmins of these times had lost the royal favor. Consider the case of kings of Lunar Line. It is known that the king *Udayana* of *Kauśāmbī*, an age equal of Buddha (563 BCE), was a *Pāñdava* (descendent of *Pāndu*, the father of *Yudhiṣṭhira*) and that he ascended at an age of 21 (542 BCE). It is also known from the *Purāṇa* and other literature that the *Pāñdavā* kings of Lunar Line settled in *Vatsa* Kingdom, with its capital at *Kauśāmbī*, after the *Hastināpura* floods. Now, the *Kathā Sarita Sāgara* and the Buddhist literature independently state that an ancestor of *Udayana*, 3 generations before him (*Vasudāna/ Parantapa/ Śatānīka II* etc.), had moved to *Kauśāmbī* after the *Hastināpura* Floods.

¹¹⁵ During his excavation of the *Hastināpura* site in 1951, the eminent archaeologist B.B. Lal of the A.S.I. (Archaeological Survey of India) discovered a flooding zone dated to about 800 BCE. But by virtue of *Mahābhārata* war being located in 827 BCE, the *Hastināpura* Floods date gets shifted to ~642 BCE, 185 years after the war. As the *Gangā* river was flooded to the extent of submerging a complete city, this flooding must have occurred on account of heavy rains and its quite likely that *Ayodhyā* and *Magadha* were also somewhat affected.

¹¹⁶ This may be taken as a thumb-rule for those Puranic genealogies, wherever there seems to be a conflict.

From the *Purāṇa* lists, we know the generations from *Yudhiṣṭhira* up to *Nicakru / Nṛcakṣu*, during whose reign the floods are said to have destroyed *Hastināpura*. As the lists up to *Nicakru* are in past tense and much is known about these kings, the *Purāṇā* lists up to *Nicakru* can be trusted. When we combine the *Purāṇā* lists (from *Yudhiṣṭhira* to *Nicakru* upto the floods) with the KSS/Buddhist lists (*Vasudāna* to *Udayana* after the floods), it correctly amounts to only 12 generations (08 gens.¹¹⁷ from *Yudhiṣṭhira* to *Nicakru* and 04 gens. from *Vasudāna* to *Udayana*) against the 26 generations stated in the *Purāṇā* for the same period. Clearly, the *Purāṇā* lists have an interjected list of about 13/14 names, in between *Nicakru* and *Vasudāna*, both of whom are said to exist about the *Hastināpura* floods. These interjected lists are in the future tense and can be rejected outright for they are nothing but the trash inserted by the *Sūtā* on account of their misunderstanding. Nothing is known of these kings except their stated names, while we know great details of other kings as far back as ~3400 BCE, from these very *Purāṇā*. A mere cursory glance at the *Garuḍa Purāṇa* list makes it obvious that the names from *Kṛṣṇa* to *Vṛṣṇimāna* clearly belong to the *Vṛṣṇi* / *Yadu* lineage of *Kṛṣṇa*; *Aniruddha* was a grandson of *Kṛṣṇa*:

*Yudhiṣṭhira, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta,
Adhisomaka (Adhisīma Kṛṣṇa), (Kṛṣṇa, Aniruddha, Usna, Citraratha,
Śucidratha, Vṛṣṇimāna), Susena, Sunītha, Nṛcakṣu, Mukhabana, Medhāvī,
Nrpañjya, Pariplāva, Sunaya, Brhadratha, Hari, Tigma,
Śatānīka II, Sudānīka, Udāna (Udayana), Ahinara, Daṇḍapāṇi,
Nimittaka, Kṣemaka, Śudraka*

Garuḍa Purāṇa (Ch. 141)

Similarly, in the *Viṣṇu Purāṇa* list, the too obvious names of *Kṛṣṇa* & *Aniruddha* from the *Yadu* / *Vṛṣṇi* names are removed, thus

¹¹⁷ By a succession count, *Nicakru* was 7th from *Yudhiṣṭhira*. But as *Yudhiṣṭhira* first ascended 40 years before the *Māhābhārata* war and as his successor *Parīkṣit* was his grandson, *Yudhiṣṭhira* needs to be counted as 02 generations.

making an “improvement” over the list from *Garuḍa Purāṇa*, but others names are still retained.

Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru, (Uṣṇa, Vicitraratha, Śuciratha, Vṛṣṇimāna, Suṣena), [Sunītha, Nṛpacakṣu, Sukhavāla, Pariplāva, Sunaya, Medhāvī, Ripiñjaya, Mṛdu, Tigma, Brhadratha], Vasudāna, Śatānīka II, Udayana, Ahinara, Daṇḍapāṇi, Niramitra, Kṣemaka

Viṣṇu Purāṇa (4.21)

In both these lists, there is agreement between the first part (*Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisomaka/Adhisīma Kṛṣṇa*) and the last part (*Śatānīka II, Sudānīka, Udāna/Udayana, Ahinara, Daṇḍapāṇi, Niramitra, Kṣemaka*). From the KSS, we also know that *Sahasrāṇīka* (*Sudānīka*) was the son of *Śatānīka* II and the father of *Udayana*. But in the middle of the lists, there is no agreement. Both the lists are in past tense up to *Adhisīma Kṛṣṇa* and *Nicakru* and can be trusted. *Nicakru* of *Viṣṇu Purāṇa* list seems to be omitted in the *Garuḍa Purāṇa* list but he has been mentioned separately to be the one who shifted to *Kauśāmbī* after the *Hastināpura* floods. So, now we have a trustworthy list up to the time of floods: (*Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru*). For the time after the floods, the lineage of king *Udayana*, by the accounts of *Kathā Sarita Sāgara* and the Buddhist literature, can be taken thus: (*Vasudāna, Śatānīka II, Sahasrāṇīka/Sudānīka, Udayana, Ahinara, Daṇḍapāṇi, Niramitra, Kṣemaka*). Combining these two lists, we are able to reconstruct the original genealogy as follows:

'A' List (Before Hastināpura Floods, from the Purāṇā)

(*Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru*)

'B' List (After Hastināpura Floods, from KSS & Buddhist Literature)

(*Vasudāna, Śatānīka II, Sahasrāṇīka, Udayana, Ahinara, Daṇḍapāṇi, Niramitra, Kṣemaka*)

Reconstructed Original Genealogy: ('A' List + 'B' List)

(*Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru, Vasudāna, Śatānīka II, Sahasrāṇīka, Udayana, Ahinara, Dandapāṇi, Niramitra, Kṣemaka*)

As *Udayana* ascended at 21 years of age in 542 BCE, his personal generation time¹¹⁸ started in 534 BCE, with his 30th year. So, the personal generation time of *Parīkṣit* can be worked out to be 9 generations before that of *Udayana* which amounts to 795 BCE ($9 \times 29 = 261$ years, before 534 BCE). As the ascension of *Parīkṣit* took place in his 18th year, in the 18th year¹¹⁹ from the *Mahābhārata* war, his ascension time was about 807 BCE, 12 years before his personal generation time of 795 CE. So, the *Mahābhārata* war can be roughly dated to 825 BCE, 17 years before *Parīkṣit*'s ascension. As shown in the *Mahābhārata* chapter, the war occurred in Dec, 827 BCE (~826 BCE). The great accuracy of a generation as of 29 years is established from the simple observation that, counting over 291 years (261+12+17), we incur an error of only 1 year (826-825) or 0.34%, in calculating the time of *Mahābhārata* war genealogically.

Similarly, the interjected lists of the Solar line, after *Bhānuratha*, and that of *Magadha* kings, after *Senajit*, can also be easily weeded out to restore the correct original genealogies. These corrected genealogies, leading up to *Mahānandī* in Gen.131, are provided in the following tables and they are in complete harmony with all known facts about the inter-relationships of these kings.

¹¹⁸ A generation is of 29 years and the generation time starts at the completion of 29 years which equals the 30th year.

¹¹⁹ Due to misinterpretation of *Saṃskṛt* Verses, *Parīkṣit* is wrongly believed to have ascended in 36th year after the *Mahābhārata* war.

Gen	Year	Magadha	Avantī/Ujjain	Lunar Line (Hastināpura)	Solar Line (Ayodhyā)
115	-867	Jarāsamdhā	Vinda & Amucianda (sis) Mitravindā: married Kṛṣṇa	Yudhiṣṭhīra	Bṛhadbala
116	-838	Sahadeva	X	... (Yudhiṣṭhīra)	Bṛhadśaya, Urukṣaya
117	-809	Somādhi / Meghasamdhī	X	Parīkṣit+ (g) Yudhiṣṭhīra	Kṣaya
118	-780	Śrutasravā	X	Janamejaya	Vatsavyuha, Vatsadroha
119	-751	Ayutāyu / Apratīpi	X	Śatānīka I	Prativyuha, Prativyoma
120	-722	Niramitra	X	Aśvamedhadatta	Divākara
121	-693	Sukṛta / Surakṣa	X	Adhisoma Kṛṣṇa	Sahadeva
122	-664	Bṛhadkarmā	X	Nicakru / Nicakṣu (Shifted to Kausāmbī) [+INT. LIST]	Bṛhadāśva / Dhruvāśva

Table 2.28
Synchronized List of Kings #Gen. 115-122

Gen	Year	Magadha	Avantī/Ujjain	Lunar Line (Kausāmbī)	Solar Line (Ayodhyā)
123	-635	Senajit	X	Vasudāna	Bhāmuraθha [+INT. LIST]
124	-606	Śrutajīyā [+INT. LIST]	Mahendra Varmṇa	Śatāñika II	Kṛtañjaya / Kṛtavarmā (d) Mīgavatī
125	-577	Ariñjaya / Ripiñjaya	Jayasena	Sahaśrānika (w) Mrgavatī (fil) Kṛtañjaya	Ranęjaya, Rañajīyaya
126	-548	Bhattiya / Kshemajīta+ Bimbisāra	Candā Pradyota / Mahāsena (~555 BCE)	Udayana (542-482 BCE) (n) Age Equal of Buddha	Sañjaya Mahakoala
127	-519	Bimbisāra (n) ruled 52 years	Pālaka / Balāka? (b) Gopāla	... (Udayana)	Prasenjit (d) Vajīrā (sil) Ajātaśatru
128	-490	Ajātaśatru (fil) Prasenjit	(490 BCE)	Nandī / -Avantī Vardhana	Viśākha- yūpa? Ahinara
129	-461	Udāyībhadrā (458 BCE)	X	Janaka?	Viḍūḍabha / Virudhaka
		Nandīvardhana / Aniruddha / Muṇḍa+	(442 BCE)	Danḍapāṇī	Kulaka, Kṣulika
130	-432	Nāgadāsaka/ Darsaka (b) Śiśunāga+	X	Nandī- Vardhana? (s) Nandī?	Niramitra (s) Kṣemaka (s) Sumitra

Table 2.29
Synchronized List of Kings #Gen. 123-130

2.6 Magadha & Ujjain Period

Mahānandī (Gen.131, 404 BCE), the son of a barber, also known as *Kākavarṇa* or *Kālāśoka*, killed the most kings of *Bhāratavarṣa* (North India), including those of Solar and Lunar Lines, and became the sole ruler, governing all provinces from *Magadha*. For 17 generations, up to Gen.147, almost the entire *Bhāratavarṣa* was ruled as one country, successively under the *Nanda*, *Maurya*, *Śuṅga* and *Kaṇva* dynasties. By the end of this time, *Magadha* and Ujjain became the only two major power centers of *Bhāratavarṣa*.

Gen	Year	<i>Bhāratavarṣa</i>	Gen	Year	<i>Bhāratavarṣa</i>
131	-403	<i>Mahānandī / Kālāśoka</i> <i>Kākavarṇa</i> (392 BCE)	140	-142	<i>Agnimitra</i>
132	-374	<i>Mahāpadma Nanda</i> (364 BCE)	141	-113	<i>Vasumitra (n) started</i> <i>Kṛta/Mālava Era: 94 BCE</i>
133	-345	<i>Dhanā Nanda</i> (342 BCE) (b) 08 Other Nanda Sons	142	-84	<i>Bhagabhadra</i>
134	-316	<i>Candra Gupta</i> <i>Maurya+</i> (321 BCE)	143	-55	<i>Devabhūti</i>
135	-287	<i>Bindusāra</i> (297 BCE)	144	-26	<i>Vasudeva Kaṇva+</i>
136	-258	<i>Āsoka</i> (264 BCE)	145	3	<i>Bhūmimitra</i>
137	-229	<i>Kuṇāla</i> (b) <i>Daśaratha</i> / <i>Samṛāti+</i>	146	32	<i>Nārāyaṇa</i>
138	-200	<i>Śatadhanvā</i> (b?) <i>Samyuta</i> / <i>Śāliśuka</i> / <i>Somaśarmā</i>	147	61	<i>Suśarman</i> <i>Śatakarnī+</i> (@ <i>Magadha</i>)
139	-171	<i>Bṛhadratha</i> <i>Puṣyamitra+</i> (180 BCE)	--	--	--

Note: It can be noticed that there is no place for any *Vikramāditya* (of *Vikrama* Era of 57 BCE) in Gen. 142 (85 BCE) or in Gen.143 (56 BCE).

Table 2.30
Kings of *Bharatavarṣa* #Gen. 131-147

Suśarman of Gen.147, the last ruler of *Kaṇva* dynasty, was a weak ruler and he lost control of both *Magadha* and Ujjain: *Magadha* to *Śatakarnī* of *Sātavāhana* dynasty and Ujjain to the *Caṣṭana* of *Śaka*

dynasty in 78 CE. After few generations, the control of both *Magadha* and *Ujjain* eventually reverted to the *Gupta* dynasty, as shown in the following table.

<i>Gen</i>	<i>Year</i>	<i>Magadha</i>	<i>Avantī / Ujjain</i>
147	61	<i>Suśarman</i> <i>Śatakarnī+</i>	<i>Suśarman</i>
148	90	<i>Vasiṣṭhiputra Pulumāvī</i>	<i>Caṣṭana+</i> (<i>n</i>) started <i>Śaka Era</i>
149	119	<i>Vasiṣṭhiputra Śatakarnī+</i> (<i>sil</i>) <i>Rudradaman I</i>	<i>Jayadaman</i>
150	148	<i>Śiva Śrī Śatakarnī</i> (<i>n</i>) twice defeated <i>Rudradaman I</i>	<i>Rudradaman I</i> (<i>fil</i>) <i>Vasiṣṭhiputra Śatakarnī</i>
151	177	<i>Śivaskanda Śatakarnī</i>	<i>Jivadaman</i> (<i>Damajada Sri</i>) <i>Rudrasimha I+</i>
152	206	<i>Yajña Śrī Satakarni</i>	<i>Rudrasena I</i>
153	235	<i>Vijaya</i>	<i>Sanghadaman</i>
154	264	<i>Śrī Gupta+</i>	<i>Damasena</i>
155	293	<i>Ghaṭotkaca</i>	<i>Yashodaman</i> (<i>b</i>) <i>Vijayadaman</i> , <i>Damajada II</i>
156	322	<i>Candra Gupta I / Vijayāditya</i>	<i>Vishvasimha</i> <i>Bhartudaman+</i> <i>Rudradaman II+</i> (335-345 CE) (<i>Nagarjunakonda Ins.</i>)
157	351	<i>Samudra Gupta / Aśokāditya</i>	<i>Rudrasimha III</i> (<i>n</i>) killed by CG II
158	380	<i>Candra Gupta II</i> (<i>Kalki Avatāra</i>)	<i>Candra Gupta II+</i> (<i>Kalki Avatāra</i>)

Table 2.31
Kings of *Ujjain* and *Magadha* #Gen. 147-158

It should be mentioned again by me that the Puranic accounts from after the time of Buddha, which allot thousands of years to some of these dynasties, are unreliable and not in confirmation with the accounts of Jain/Buddhist literature, but some general information maybe gleaned from them. The *Gupta* dynasty leading up to *Harsa Vardhana* (*Vikramāditya*) is discussed next.

2.7 The Gupta Period

Now, let's take up the *Gupta* period. There were two Early *Gupta* Dynasties (one at *Magadha*, another at *Ujjain*) and one Later *Gupta* Dynasty (at *Magadha*). Both Early *Gupta* dynasties started with *Śrī Gupta* (~264 CE) at *Magadha*. *Candra Gupta II (Kalki Avatāra)* was the first *Gupta* king who expelled the *Śakā* from *Ujjain* and reunified the Indian kingdoms. From after him, the two Early *Gupta* Dynasties were established firmly. Shown below is the family tree of Early *Gupta* Dynasty I at *Ujjain*, marked with the flow of succession from *Skanda Gupta* to *Viṣṇu Gupta I*:

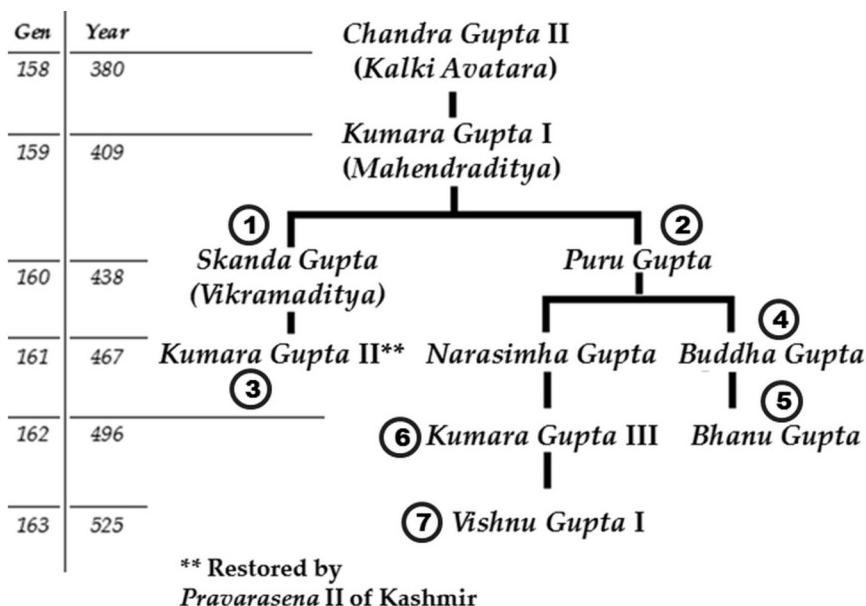


Figure 2.4
Family Tree of Early Gupta Dynasty I

The Early *Gupta* Dynasty II at *Magadha* was established by *Kṛṣṇa Gupta* (Shahpur Ins. of *Ādityasena*: VS.66, 664 CE), a grandson of *Candra Gupta II* either through *Kumāra Gupta I* or through *Govinda Gupta* (Ins. MS.524, 431 CE). Remember, the epoch year of *Kṛta/Mālava Era* (KS/MS) is 94 BCE and not 57 BCE.

No.	Early Gupta Dynasty-I	Start (CE)	Yrs.	Early Gupta Dynasty-II	Start (CE)
1	<i>Śrī Gupta</i>	~260	~30	<i>Śrī Gupta</i>	~260
2	<i>Ghaṭotkaca</i>	~290	~29	<i>Ghaṭotkaca</i>	290
3	<i>Candra Gupta I</i>	319	16	<i>Candra Gupta I</i>	319
4	<i>Samudra Gupta</i>	335	40	<i>Samudra Gupta</i>	335
5	<i>Candra Gupta II</i> (<i>Kalki Avatāra</i>)	380	34	<i>Candra Gupta II</i> (<i>Kalki Avatāra</i>)	380
6	<i>Kumāra Gupta I</i> (<i>Mahendrāditya</i>)	414	41	<i>Govinda Gupta</i> (Ins. MS.524 = 431 CE)	414 (~409)
7	<i>Skanda Gupta</i> (<i>Vikramāditya</i>) (b) <i>Puru Gupta</i> +	455	25	<i>Kṛṣṇa Gupta</i> (n) son of either G.G. or K.G. I	~438
8	<i>Kumāra Gupta II+</i> <i>Buddha Gupta</i> +	475	35	<i>Harṣa Gupta</i> (<i>Balāditya</i>) (n) captured <i>Mihirakula II</i> but set him free later	~467
9	<i>Bhānu Gupta</i> <i>Kumāra Gupta III</i> +	510	38	<i>Jīvita Gupta I</i>	~496
10	<i>Viṣṇu Gupta I</i>	~525		<i>Kumāra Gupta IV</i>	~525
11	<i>Śāṅkaragāṇa</i> +	~554		<i>Dāmodara Gupta</i>	~554
12	<i>Mahāsenā Gupta</i> + (with <i>Deva Gupta I</i>) <i>Śakā</i> +	581 592 594	13 0 4	<i>Mahāsenā Gupta</i> (n) fled <i>Magadha</i> under attack by 3 enemies	581 (~583)
X	Emperor <i>Harṣa Vardhana</i> (<i>Vikramāditya</i>)	598	49	<i>Mādhava Gupta</i> (n) Son of <i>Mahāsenā Gupta</i> ; restored by <i>Harṣa</i> as his vassal at <i>Magadha</i>	~612
X	3 unknown gens. until <i>Naga Bhaṭṭa I</i> *	648		<i>Ādityasena</i> at <i>Magadha</i>	~641

* *Naga Bhaṭṭa I* started the *Gurjara-Pratihāra* dynasty at Ujjain and was probably a descendent of the *Vairiśiṃha* of *Dhārā* mentioned in the *Kālakācarya Kathānaka*.

Table 2.32
The Early Gupta Dynasties up to *Harṣa Vardhana*

It is known that *Skanda Gupta* was succeeded by his brother *Puru Gupta* in 467 CE but some inscriptions of an unknown *Kumāra Gupta* (*Kumāra Gupta II*) are also found here. The presence of *Kumāra Gupta II* here is well-explained by *Kalhaṇa* in *Rājataranginī*

in stating that *Pravarasena* II of Kashmir (Gen. 161) restored the son of *Vikramāditya* (*Skanda Gupta*) on the throne of Ujjain. *Kumāra Gupta* II is likely the hitherto unknown son of *Skanda Gupta*; he was again deposed by *Buddha Gupta*, the son of *Puru Gupta*, seven years later in 475 CE (where the first Ins. of *Buddha Gupta* exists). After *Buddha Gupta*, *Bhānu Gupta* retained power as evident from his inscriptions. After *Bhānu Gupta*, power passed briefly to his cousin *Kumāra Gupta* III as *Bhānu Gupta* either died childless or his sons were deposed by *Kumāra Gupta* III. Then *Viṣṇu Gupta* I¹²⁰, the son of *Kumāra Gupta* III and the grandson of *Narasimha Gupta* assumed power. After *Viṣṇu Gupta* I, it seems the throne of Ujjain passed into the hands of the Kalacuri king *Śāṅkaragāṇa*, the son of *Kṛṣṇarāja*, as there is no known successor of *Viṣṇu Gupta* I. Ujjain was reclaimed from *Śāṅkaragāṇa* by *Mahāsenā Gupta* of Magadha, who was running away from his powerful enemies. The line of Later *Guptā* at Magadha is known to us by the Apsad Ins. (~VS.61) and the Shahpur Ins. (VS.66, 664 CE) of *Ādityasena*, the son of *Mādhava Gupta* and the grandson of *Mahāsenā Gupta*.

No.	Later Gupta Dynasty	Start (CE)	Years
1	Ādityasena (Ins. VS.66, 664 CE)	648	22
2	Deva Gupta II	~670	29
3	Viṣṇu Gupta II	~699	29
4	Jīvita Gupta II**	~728	29

** Contemporary of *Lalitāditya* of Kashmir and *Yaśovarman* of Kannauj

Table 2.33
The Later Gupta Dynasty at Magadha

Also, notice how the Early *Gupta* Dynasty I stacks up with the *Varman* dynasty of *Kāmarupa*, as known from the Nidhanpur inscriptions of *Bhāskara Varman* (650-655 CE), and the kings of Kashmir, as known from the *Rājatarāṅgiṇī* of *Kalhaṇa*. This table

¹²⁰ The line of *Viṣṇu Gupta* I (*Kumāra Gupta* I, *Puru Gupta*, *Narasimha Gupta*, *Kumāra Gupta* III, *Viṣṇu Gupta* I) is known to us from the Nalanda and Bhitari seal inscriptions.

would become fully understood on having gone through the following sections on *Vikramāditya*, *Śālivāhana* and *Rājatarangiṇī*:

<i>Gen</i>	<i>Year</i>	<i>Magadha & Ujjain</i>	<i>Kāmarupa</i>	<i>Kashmir</i>
154	264	<i>Śrī Gupta+</i>	X	<i>Tuṅgajina I</i>
155	293	<i>Ghaṭotkaca</i>	<i>Puṣya Varman</i>	<i>Vijaya+</i>
156	322	<i>Candra Gupta I</i> (<i>Vijayāditya</i>)	<i>Samudra Varman</i>	<i>Jayendra</i>
157	351	<i>Samudra Gupta</i> (<i>Aśokāditya</i>)	<i>Bala Varman</i> (sil) <i>Meghavāhana</i>	<i>Samdhimati / Āryarāja</i>
158	380	<i>Candra Gupta II</i> (<i>Kalki Avatāra</i>)	<i>Kalyāṇa Varman</i>	<i>Meghavāhana</i> (fil) <i>Bala Varman</i>
159	409	<i>Kumāra Gupta I</i> (<i>Mahendrāditya</i>)	<i>Gaṇapati Varman</i>	<i>Śreṣṭhasena /</i> <i>Pravarasena I</i>
160	438	<i>Skanda Gupta</i> (<i>Vikramāditya I</i>) <i>Puru Gupta+</i>	<i>Mahendra Varman</i>	<i>Hiraṇya</i> (b) <i>Toramāṇa</i> <i>Mātrigupta+</i> (n) sent by <i>Skanda Gupta</i>
161	467	<i>Kumāra Gupta II+</i> <i>Buddha Gupta+</i>	<i>Nārāyaṇa Varman</i>	<i>Pravarasena II</i> (b) <i>Mihirakula II</i>
162	496	<i>Bhānu Gupta</i> <i>Kumāra Gupta III+</i>	<i>Bhūti Varman</i>	<i>Yudhiṣṭhira II</i>
163	525	<i>Viṣṇu Gupta I</i>	<i>Candramukha</i> <i>Varman</i>	<i>Narendrāditya I</i> <i>Rāṇāditya I+</i>
164	554	<i>Śāṅkaragana+</i>	<i>Stitha Varman</i>	<i>Vikramāditya</i> (sil) <i>Rājā Gaja of</i> <i>Ghazni:</i> (s) <i>Śālivāhana</i>
165	583	<i>Mahāsena Gupta +</i> (with <i>Deva Gupta I</i>) <i>Śakā+</i>	<i>Sustitha Varman</i> (s) <i>Supratīṣṭhita,</i> <i>Bhāskara</i>	<i>Balāditya+</i>
166	612	<i>Harṣa Vardhana+</i> (<i>Vikramāditya II</i>) (c) <i>Śālivāhana</i>	<i>Bhāskara Varman</i> (n) friend of <i>Harṣa</i>	<i>Durlabha Vardhana</i> (<i>Prajñānāditya</i>)

Table 2.34

Kings of Ujjain and Magadha, Kāmarupa & Kashmir #Gen. 154-166

The following *Gupta* inscriptions have been relied upon for a historical reconstruction:

<i>Kumāra Gupta I</i>	Bilsad Pillar Ins. - GS 96 (415 CE) Mankuwar Image Ins. - GS 129 (448 CE) Silver Coin Ins. - GS 136 (455 CE)
<i>Skanda Gupta</i>	Junagarh Rock Inscription - GS 136 (455 CE) Bihar and Bhitari Stone Pillar Ins. (Fleet No. 12/13); last known GS 148 (467 CE)
<i>Kumāra Gupta II</i>	Sarnath Stone Ins. - GS 154 (473 CE), last known
<i>Buddha Gupta</i>	Sarnath Stone Ins. - GS 157 (476 CE) Eran Stone Pillar Ins. - GS 157 (476 CE) Eran Stone Pillar Ins. - GS 165 (484 CE) Nandapur Copper Plate Ins. - GS 169 (488 CE) British Museum Coin of Central India - GS 175 (494 CE)
<i>Bhānu Gupta</i>	Eran (Madhya Pradesh) Ins. about <i>Goparāja</i> , commander of <i>Bhānu Gupta</i> - GS 191 (510 CE)
<i>Kumāra Gupta IV</i>	Damodarpur No. 5 Copper Plate Ins. - GS 214 (533 CE)

Table 2.35
Gupta Inscriptions

2.8 *Kalki Avatāra*

As per the *Purāṇā*, the *Kalki Avatāra*, stated to be the 10th avatar of *Viṣṇu*, is to kick out the *Mlecchā* and the *Śakā* from the Earth (*Āryāvarta*, the Indian Earth), establishing righteousness and restoring *dharma* in the society. Now, it is only common sense that the *Kalki-Avatāra*, a great king and the rider of *Devdatta* (a white horse), wouldn't be apt for the modern times of warfare with Automatic Weapons, Tanks and Missiles etc. Even in India, the foreigners are not called the *Śakā* or the *Yavāṇā* anymore. The north-western part bordering the present-day India, the earlier place of *Śakā* and the *Yavāṇā*, is now the country of Pakistan, almost a wholly Muslim country. All this clearly implies that the *Kalki Avatāra* is now already past, without most people realizing it. So, *Kalki* must have been a greatly celebrated king, sometime after the *Mahābhārata* war, and, being established in the *Sanātana*

Dharma, must have driven out the *Śakā* and *Mlecchā* from the Indian subcontinent. Thus, his period was most likely when the *Śakā* were well entrenched in the inner territories of Indian subcontinent such as Mathura and Ujjain. This period is clearly identifiable as the one that started from after the *Śaka* Era (78 CE) of *Caṣṭana* in Ujjain. In this period, there was a great king known as *Candra Gupta* II, also referred by some as *Candragupta Vikramāditya*, who completely uprooted the *Mlecchā* (*Śakā* and *Yavānā*) from Ujjain and the Indian subcontinent, winning territories up to *Takṣaśilā* in the west and *Magadha* and *Aṅga* in the east. He reconsolidated all the north Indian kingdoms of *Bhāratavarṣa* into a big empire, as first achieved by *Mahānandī* (Gen.131, 404 BCE). He was an ardent *Kṣatriya* king exceedingly devoted to *Viṣṇu* and to the cause of the *Sanātana Dharma* of Vedic civilization. He re-established the Vedic *Yajñā* and greatly promoted the Vedic arts and sciences. So, it can be concluded fairly well that it was *Candra Gupta* II who was the prophesized *Kalki Avatāra* of the *Purāṇā*. His ascension time at Ujjain (~380 CE) also matches the *Purāṇa* statement that the *Kalki Avatāra* will take place at a juncture of *Kali-Yuga* and *Kṛta-Yuga* and that there will be a conjunction of Sun, Moon and Jupiter in *Puṣya Nakṣatra* at the start of *Kṛta-Yuga* of his time¹²¹. It can be checked that 380 CE was the 9th year of 38th *Kali-Yuga* and that the 39th *Kṛta-Yuga* started in 385 CE. Even within this *Kṛta-Yuga*, its first proper year started 04 years later in 389 CE (as the juncture period of a *Kṛta-Yuga* is 04 years at both ends). It can also be checked, using the Vedic *Ayanāṁśa*, that, as stated, there was a conjunction of Sun, Moon and Jupiter in *Puṣya Nakṣatra* on the morning of Jul 9, 389 CE, at the start of first proper year of 39th *Satya-Yuga*.

Now, the *Kalki Purāṇa* mentions a king *Viśākhayūpa* as a subordinate ally of *Kalki Avatāra*. But, as per other *Purāṇā*, king *Viśākhayūpa* was the successor to *Pālaka*, the young son of *Canda*

¹²¹ यदा चन्द्रश्च सूर्यश्च तथा तिष्यो वृहस्पतिः ।

एकराशौ समेष्यन्ति तदा भवति वै कृतम् ॥ VP 4.24.102

Pradyota of *Avantī/Ujjain*, who, as per the Jain texts, ascended the throne on the same day as that of *Nirvāṇa* of *Mahāvīra* in 527 BCE. So, the time of *Viśākhayūpa* was about 498 BCE, a generation later of 527 BCE and *Viśākhayūpa* seems to be an alternate name of *Avantīvardhana*, the son of *Pālaka*, the last known *Pradyota* ruler of Ujjain before *Ajātaśatru* (491 BCE) or *Mahānandī* (393 BCE), or someone in between, took over Ujjain. But, as there was no *Kalki* in these times, the *Kalki Purāṇa* is highly unreliable and much of it appears to be a fabrication based on the prophecy of *Kalki Avatāra* found in other *Purāṇa*. In these times from 527-400 BCE, when Buddhism was gaining ascendancy, the *Kalki Purāṇa* was likely forged by some Brahmins in their efforts to save the Vedic culture from the Buddhist onslaught, by proclaiming that the prophesized *Kalki Avatāra* had materialized and that the people need not fear the Buddhists anymore.

2.9 *Vikramāditya, Vikrama Era & Śālivāhana*

Since the last 1300 years, there prevails a great confusion about an emperor *Vikramārka / Vikramāditya* who was the patron of the most famous scholar and poet *Kālidāsa*¹²² and whose *Vikrama* era (also wrongly taken to be *Kṛta / Mālava* era) is thought to have started in 57 BCE. The cause of this confusion is our wrong understanding

¹²² The 37 literary works ascribed to *Kālidāsa* are:

- 1) *abhijñāna śākuntala* 2) *Vikramaorvaśīya* 3) *mālavikāgnimitra*
- 4) *raghuvaṁśa* 5) *kumārasambhava* 6) *meghadūta* 7) *kunteśvaradautya*
- 8) *r̥tusam̥hāra* 9) *ambāstava* 10) *kalyāṇastava* 11) *kālīstotra*
- 12) *kāvyanāṭakālāṅkārāḥ* 13) *gamgāṣṭaka* 14) *ghaṭakarpara*
- 15) *caṇḍikādaṇḍakastotra* 16) *carcāstava* 17) *jyotiividābharaṇa*
- 18) *durghaṭakāvya* 19) *nalodaya* 20) *navaratnamālā* 21) *puṣpabāṇavilāsa*
- 22) *makarandastava* 23) *mamgalāṣṭaka* 24) *mahāpadyaśaṭka* 25) *ratnakoṣa*
- 26) *rākṣasakāvya* 27) *lakṣmīstava* 28) *laghustava* 29) *vidvadvinodakāvya*
- 30) *vṛndāvanakāvya* 31) *vaidyamanoramā* 32) *śuddhacandrikā*
- 33) *śr̥īmgāratilaka* 34) *śr̥īmgāraraśāṣṭaka* 35) *śr̥īmgārasārakāvya*
- 36) *śyāmalādaṇḍaka* 37) *r̥tubodha*

of the intent of a verse from the *Jyotirvidābhārana*, an astrological treatise of *Kālidāsa*. *Kālidāsa* states in *Jyotirvidābhārana* that *Vikramāditya* defeated a *Śaka* king ruling from *Rukma* kingdom (*Vidarbha* or Eastern Maharashtra) and snatched *Ujjain* from him, and that the *Vikrama* era was started by him.

यद्राजघानि उज्जियनी महापुरी सदा महाकाल महेश योगिनी ।
 समाश्रयि प्राणी अपवर्गदायिनी श्रीविक्रमार्कोऽवनिपो जयति अपि ॥ JV 22.16
 यो रुक्मदेश अधिपतिं शकेश्वरं जित्वा गृहीत्वा उज्जियनीं महाहवे ।
 आनीय सम्भ्राम्य मुमोच यत्वहो स विक्रमार्कः समस्तविक्रमः ॥ JV 22.17
 तस्मिन् सदाविक्रम मेदिनीशे विराजमाने समवन्तिकायाम् ।
 सर्वप्रजा मङ्गल सौष्य सम्पद् बभूव सर्वत्र च वेदकर्म ॥ JV 22.18

*This Ujjayinī, a great city, always in service of Mahākāla Maheśa,
 A shelter of all creatures, provider of all people, king Vikramārka has won it.
 He won the Śaka lord of Rukma kingdom, seized Ujjayinī after a great battle,
 Bringing him here, (first) paraded him but (then) released him (without
 killing him), that Valor of Sun, who is tolerant of others' valor.
 While, the always valorous, the lord of Earth, is present in Avantikā (Ujjain),
 For all people, there is well-being, happiness and prosperity; everywhere the
 Vedic injunctions are followed.*

Note: This *Rukma* kingdom is not a *Romaka* or *Yavana* kingdom in Europe or the Middle-East as many think it to be. It is a reference to a *Vidarbha* region kingdom of *Rukma* brothers led by *Rukmī*, which was probably being ruled by *Śakā* this time who also had *Ujjain* under their control. *Rukmī*, the brother-in-law of *Kṛṣṇa* of *Mahābhārata* era, was defeated by *Kṛṣṇa* when he chased *Kṛṣṇa* who had kidnapped *Rukmī*'s sister *Rukmiṇī* at her request, as per the *Kṣatriya* tradition of marriage. Though his life was spared by *Kṛṣṇa* at *Rukmiṇī*'s request, he didn't return to his original city, feeling ashamed for his defeat, and founded a new city called *Bhojakata*, west of original capital of *Kuṇḍinapura*.

Kālidāsa states that he started writing *Jyotirvidābhārana* in the year *Kali.3067* in *Mādhava/Vaisākha* month (~Apr) and completed it in 3 seasons (6 months) in the *Kārtika* (~Oct) month at which time it was the 24th year of *Vikramāditya*'s reign. *Varāhamihira*, a colleague of *Kālidāsa*, tells us in *Bṛhad Samhitā* that their years were reckoned

from the start of *Kārtika* month. So, deducting one year due to increased year count from *Kārtika*, *Kali.3067* was the 23rd year from the *Ujjain* ascension of *Vikramāditya* which took place in *Kali.3045* (3067-22). This year *Kali.3045* is when *Vikramāditya* released *Ujjain* from the clutches of *Śakā* and when the *Vikrama* era started:

विक्रमार्क वर्णनम्-

वर्षे श्रुतिस्मृति (24) विचारविवेकरम्ये श्रीभारते खद्यूति (180) सम्मित देशपिठे ।
मत्तोऽधुना कृतिरियं सति मालवेन्द्रे श्रीविक्रमार्कं नृपराजवरे समासीत् ॥ JV 22.7

In the year 24 (of the king), with knowledge & conduct of Bhāratavarṣa that is constituted of 180 provinces (big and small), at its main center (Ujjain), Delighted now I am, on this work, when the lord of Mālava, Śrī Vikramārka, the excellent king of kings, rules (the Bhāratavarṣa).

Note: *Śruti* = 4 (4 *Vedā*), *Smṛti* = 20 (20 *Dharma* Guides as per *Yājñavalkya*) => *Śrutismṛti* (श्रुतिस्मृति) = 24

वर्षः: सिन्धुरदर्शनाम्बरगुणैः: (3067) याते कलौ सम्मिते,
मासे माधवसंज्ञिके च विहितो ग्रन्थक्रियोपक्रमः ।
नाना कालविधान शास्त्रं गदित ज्ञानं विलोक्या दरादूर्जे,
ग्रन्थसमाप्तिः त्र (3) विहिता ज्योतिर्विदां प्रीतये ॥ JV 22.21

*Years 3067 were gone of Kali (-Yuga) measure,
In month of Mādhava (Vaisākha), (when I) started the work on this book,
Analyzing various astronomical texts, knowledge is visible at last,
(I) completed the book in 3 seasons (6 months), for the joy of Astrologers.*

Note: *Sindhu* = 7 (Seven *Sapta Sindhu* Rivers), *Darśana* = 6 (*Ṣad Darśana*, Six Philosophies), *Ambara* = 0 (Sky is Empty), *Guṇa* = 3 (three primal qualities of Nature: *Satoguṇa*, *Rajoguṇa*, *Tamoguṇa*)
=> *Sindhuradarśanāmbaragunai* (सिन्धुरदर्शनाम्बरगुणैः) = 3067

The whole confusion of *Vikrama* Era is due to the wrong interpretation of this *Kali.3045* year. While *Kālidāsa*, being from the *Ujjain* tradition, implied to count it from the *Kali-Yuga* epoch year of the *Ujjain* tradition (2448 BCE), it has been counted erroneously, for nearly 1400 years now, from the *Kali-Yuga* epoch year of *Āryabhaṭṭa* (3102 BCE). *Vṛddha Garga*, *Varāhamihira* and *Kālidāsa* all belonged to *Ujjain* tradition, *Varāhamihira* was a

colleague of *Kālidāsa* and both were eminent scholars in the *Ujjain* court of the emperor *Vikramāditya*, as *Kālidāsa* himself has stated. Quite clearly, *Kālidāsa* meant the year count to be taken from 2448 BCE as per the *Ujjain* tradition rather than from 3102 BCE as per the opinion of *Āryabhaṭṭa* of *Paṭaliputra* who, in his own words, was without any tradition. So, the correct epoch year of *Vikrama* era is 598 CE (-2447+3045) as per the *Ujjain* tradition and not 57 BCE (-3101+3045) as per the *Āryabhaṭṭa* tradition. This may now be proved sufficiently by any *Kali* year date from this period which mentions an eclipse, a weekday or a *Nakṣatra*.

James Tod provides us with one such opportunity when he narrates the account of *Rājā Gaja*, the father of *Śālivāhana* and the son-in-law of *Vikramāditya* of Kashmir¹²³:

"Thursday (Vrishpatwar) the 13th of Magh, the enlightened half of the moon, when one għurri of the day had fled, was the auspicious hour; and the drum of departure sounded. That day he marched eight coss, and encamped at Doolapur."

:

"On Sunday, the 3rd of Bysak, the spring season (Vasant), the Rohini Nakhatra, and Saṃvat Dherma-Rāja (Yudishthira) 3008, seated on the throne of Gujni, he maintained the Jadoon race. With this victory his power became firm: he conquered all the countries to the west, and sent an ambassador to Cashmere to call its prince Kandrupkelf to his presence. But the prince refused the summons: he said the world would scoff at him if he attended the stirrup of another without being first worsted in fight. Rāja Guj invaded Cashmere; and married the daughter of its prince, by whom he had a son, called Salbahan".

Here, Tod is saying that *Rājā Gaja* started his march against the Shah of Khorasan on *Māgha* S13 day, a Sunday and after winning, he sat on the throne of Ghazni on *Vaisākha* S03 of year *Kali*.3008 that was a Sunday and a day of *Rohinī Nakṣatra*. Now, as the *Kali*

¹²³ Annals and Antiquities of Rajasthan, Vol. II, Annals of Jaisalmer (1884), pp.245-248

Yuga of Āryabhaṭṭa (3102 BCE) was invented only in 499 CE (SS.421), as having started 3600 years prior to this time, any *Kali* dates lesser than 3600 have nothing to do with the *Kali* epoch year of 3102 BCE. Such dates therefore unfailingly refer to 2448 BCE, the *Kali* epoch year as per Ujjain tradition. So, *Kali*.3008 refers only to year 561 CE (-2447+3008); the *Māgha* S13 day seems to refer to Jan 13, 561 CE (Thursday) and the *Vaisākha* S03 day seems to refer to Apr 03, 561 CE (Sunday, *Rohiṇī Nakṣatra*). There is an error of a day in regards to the first date (Jan 13) but the second and more detailed date (Apr 03) is a total match:

No	Month	New Moon Day (Prev.)	Full Moon Day
1	<i>Māgha</i>	02.01.561 (NMP: 02.01.561 01:05 IST)	18.01.561
2	<i>Phālguna</i>	01.02.561	16.02.561
3	<i>Caitra</i>	02.03.561	18.03.561
4	<i>Vaisākha</i>	01.04.561 (NMP: 31.03.561 21:15 IST)	16.04.561

Note: Since the New Moon Point (31.03.561 21:15 IST) fell much after the midday point, the next day of 01.04.561 was the proper New Moon day as per Vedic calendar and 02.04.561, the still next day, was the first day of *Vaisākha*. But, during and after the *Siddhānta* period, this Vedic principle was forgotten and **the New Moon day, the day that immediately followed the New Moon point, was taken to be the first day of next month**. The same applies for most dates from after the *Siddhānta* period. So, both should be checked.

Table 2.36

Vedic Calendar of 561 CE, coronation year of *Rājā Gaja* at Ghazni

James Tod further mentions that, due to news of an impending attack from Khorasan, his most family members and the prince Śālivāhana were sent away from Ghazni by *Rājā Gaja* on the pretext of a pilgrimage to Jwalamukhi. Reaching Punjab, Śālivāhana founded a new city called Śālivāhanapura (Sialkot) on *Bhādrapada* (Bhadoon) S08 day, a Sunday, of 72nd (expired) year of an Era that Tod calls the *Vikrama Samvat* in error:

"When this child had attained the age of twelve, tidings of another invasion came from Khorasan. Rājā Guj shut himself up for three entire days in the temple of Culadevi: on the fourth day, the goddess appeared and revealed to him his destiny; that Gujni would pass from his hands, but that his posterity would re-inherit it, not as Hindus but as Mooslems; and directed him to send his son Salbahan amongst the Hindus of the east, there to erect a city to-be named after him. She said that he would have fifteen sons, whose issue would multiply; that he (Rājā Guj) would fall in the defense of Gujni, but would gain a glorious reward hereafter."

:

"When tidings of this fatal event were conveyed to Salbahan, for twelve days the ground became his bed. He at length reached the Punjab, where he fixed on a spot with abundance of water, and having collected his clansmen around him, he laid the foundation of a city which he named after himself, Salbhanpur. The surrounding Bhomias attended, and acknowledged his supremacy. Seventy-two years of the era of Vicrama had elapsed when Salbhanpur was founded, upon Sunday, the 8th of the month of Bhadoon. Salbahan conquered the whole region of the Punjab. He had fifteen sons, who all became Rajas: viz. Balund, Rasaloo, Dhurmungud, Vacha, Roopa, Soondur, Lekh, Juskurn, Naima, Maut, Neepak, Gangeou, Jugeou ; all of whom, by the strength of their own arms, established themselves in independence."

As *Rājā Gaja* sat on the throne of Ghazni on Apr 03, 561 CE, the Era referred in the founding date of Sialkot (*Samvat*.72) can't be the *Vikrama* Era (598 CE). It's after the year 561 CE that he invaded Kashmir and married the king's daughter who gave birth to *Śālivāhana*. Now, *Rājā Gaja* must have taken at least 1-2 years after his coronation to march to Kashmir and *Śālivāhana* must have been born yet another 1-2 years later. So, *Śālivāhana* must have been 12 years old about 577 CE (561+4+12). Subtracting 72 from 577 CE gives us the year 505 CE as the epoch year of the unknown Era referred to by Tod. But it's only the Era mentioned in the *Pañcasiddhāntikā* of *Varāhamihira*, that of *Śaka* year 427 (505 CE), that is anywhere close to this year. This era is said to be an astronomer era started by *Lāṭadeva*, a follower of *Āryabhaṭṭa*, who revised the *Sūrya Siddhānta* constants to be referred from 505 CE.

As no other significance of this era can be made out presently, it may be referred to as the *Lāṭadeva* Era. So, the (expired) 72nd year of our *Lāṭadeva* Era was 577 CE (505+72) and its *Bhādrapada* S08 date (**Aug 08, 577 CE**) was clearly a Sunday, as described by Tod:

No	Month	First Day	Full Moon Day
7	Śrāvāna	03.07.577	16.07.577
8	<i>Bhādrapada</i>	01.08.577 (NMP: 31.07.577 05:21 IST)	15.08.577
9	Aśvin	31.08.577	13.09.577

Table 2.37
Vedic Calendar of 577 CE, *Śālivāhana* settling down in Sialkot

So, it's now proved conclusively that the *Kali*.3008 year mentioned by Tod actually refers to 2448 BCE, the *Kali* Epoch year in the Ujjain tradition, and that *Rājā Gaja* ascended the Ghazni throne in 561 CE. Also, *Śālivāhana*, son of *Rājā Gaja*, 12 years old in 577 CE, was born in 565 CE. We will also read ahead that *Harṣa Vardhana* was born in 577 CE and was thus 12 years younger to *Śālivāhana*. From the analysis of *Rājatarāṅgiṇī* of *Kalhaṇa*, as given in a following section, the king ruling Kashmir at the time of *Rājā Gaja* can be made out to be the *Vikramāditya* of *Gonanda* lineage, the father of *Balāditya*, who was invaded by *Rājā Gaja* and who gave him his daughter in marriage. The *Gonanda Vikramāditya*, who seems to have been only about 10-15 years elder to *Rājā Gaja*, was thus the maternal grandfather of *Śālivāhana*. Tod states that *Śālivāhana*, after his marriage, ruled for 33 years and 9 months. So, if *Śālivāhana* married about 16 years of age, he must have died about 50 years of age in 615 CE. As for the common belief that *Śālivāhana* started the *Saka* Era of 78 CE, it can be noticed that it's merely a misconception. The *Saka* Era was actually started by the *Śaka* king *Caṣṭana* in Ujjain on winning it. It was in everyday use because the most history of this time is stated largely from the perspective of Ujjain pundits who were then under the rule of *Śakā*. Some people also wrongly attribute the *Saka* Era to *Kaniṣka* who became a king only about 127 CE.

It's also surmised that *Śālivāhana* defeated a *Vikramāditya* who, if this be true, could only be *Harṣa Vardhana* while on his conquest of the quarters. But no such account of the defeat of a *Vikramāditya* or *Harṣa* is corroborated by Tod who only states that *Śālivāhana* had won the entire Punjab and adjacent regions. It may have been that *Śālivāhana* defended well Punjab, as well as Kashmir that belonged to his maternal uncle *Balāditya*. *Durlabhavardhana*, the son-in-law of *Balāditya* who succeeded him, had nothing to do with *Harṣa*. Also, it seems that both Punjab and Kashmir were not under *Harṣa*'s sway. The kingdom of snowy lands stated to have been won by *Harṣa* during his conquest of the quarters, seems to be the Nepal of *Amśūvarman*. *Amśūvarman* was an all-powerful prime minister under *Śiva Deva I* who later became the king.

Since the oversight that put the start of *Vikrama Samvat/Era* in 57 BCE has now been clearly exposed, it becomes known that the **Ujjain ascension of *Vikramārka/Vikramāditya* of *Kālidāsa* took place in the year of 598 CE with which event started the *Vikrama Era*.** On further examination of this time period, it turns out that this *Vikramāditya* of *Kālidāsa*, who is placed in 598 CE, is none other than the famed emperor *Harṣa Vardhana* of *Puṣyabhūti* dynasty. That *Harṣa* was the *Vikramāditya* of *Kālidāsa* can be proved still more conclusively. The *Harṣa-Carita* of *Bāṇabhaṭṭa*, a Brahmin scholar in the Kannauj court of *Harṣa Vardhana*, recounts the early life of *Harṣa Vardhana* till his local ascension in his 16th year. So, it can be surmised that *Bāṇabhaṭṭa* met *Harṣa* when *Harṣa* was still 15 years of age and *Harṣa-Carita* was composed quickly thereafter. He recounts *Harṣa*'s lineage and further states that ***Harṣa Vardhana was born in Thaneshvara (now the place Thanesar in Kurukṣetra) a little after sunset, on the Kṛṣṇa Dvādaśī (K12)¹²⁴ day of Jyeṣṭha month, in Kṛttikā Nakṣatra***. He further states that *Harṣa Vardhana*, who was in his 16th year,

¹²⁴ Sonpat Copper-Seal Inscription (CII, III, P.231-232) also mentions that queen *Yasomati* gave birth to *Harṣa Vardhana* on the 12th day of the dark fortnight of the *Jyeshtha* month.

simultaneously lost his father *Prabhākara Vardhana* to an illness, his elder brother *Rājya Vardhana* to a war treachery and his brother-in-law *Grahavarman*, the husband of his sister *Rājyaśrī*, to an invasion of Kannauj by a *Deva Gupta* of Ujjain. This drove him mad with anger towards other kings and, after being chosen as the new king of *Sthaneshvara* (Thanesar) by the ministers, he undertook a successful *Digvijaya* (conquest of the quarters) in the entire north India. Also, Hiuen-Tsang has mentioned that *Harṣa* spent 5½ years conquering the main 5 Indian kingdoms ("5 Indias") before he was crowned the emperor of *Bhāratavarṣa* (North India).

Now, as per *Kālidāsa*, the crowning year of *Vikramāditya* at Ujjain was 598 CE. So, if the *Harṣa Vardhana* is indeed the *Vikramāditya* of *Kālidāsa* then the birthday details of *Harṣa Vardhana* (*Kṛttikā Nakṣatra* on *Jyeṣṭha* K12 day) given by *Bāṇabhaṭṭa* should match the calendar of 577 CE, the year 21 years (16+5.5) before 598 CE. On checking the Vedic Calendar of 577 CE, we find this to be completely true as there is a perfect match. The *Jyeṣṭha* K12 day is clearly identifiable as May 30, 577 CE on which day the moon was indeed in *Kṛttikā Nakṣatra*:

No	Month	First Day	Full Moon Day
4	<i>Vaisākha</i>	05.04.577	19.04.577
5	<i>Jyeṣṭha</i>	05.05.577	18.05.577 (FMP: 17.05.577 23:26:24 IST)
6	<i>Āṣāḍha</i>	03.06.577	16.06.577

Table 2.38
Vedic Calendar of 577 BCE, the birth year of *Harṣa Vardhana*

Not only it stands confirmed that it is *Harṣa Vardhana* who is the *Vikramārka/Vikramāditya* of *Kālidāsa* but now we also know the **exact birth date of *Harṣa Vardhana* as May 30, 577 CE (19:16 IST)**, a Sunday. While *Harṣa Vardhana* was called *Vikramārka* (*Vikrama+Arka*) by *Kālidāsa*, his another minister *Vararuci* has mentioned him clearly as *Vikramāditya* (*Vikrama+Āditya*) in his text *Patra Kaumudī* stating that the text is being composed at the

directions of his king *Vikramāditya*¹²⁵. Both titles mean the same, namely the “Sun of Valor”, as *Vikrama* means Valor and *Arka* and *Āditya* both mean the Sun.

Consequentially, the actual reign period of *Harṣa Vardhana* also stands corrected to 592-647 CE from 606-647 CE, as otherwise taken to be. *Harṣa Vardhana* ruled for 56 years, primarily from Kannauj, but also from Ujjain and other kingdoms that he had won. He had subdued the most kings in north India and made them his feudatories and was constantly touring his kingdom. In 638 CE, at an age of 56 years, he set out to subdue *Pulakeshi II* of *Vidarbha* (now in Maharashtra) in a war that drew a blank and both entered in a treaty of mutual recognition of the other's lordship of the areas south and north of the *Vindhya* mountain range. *Pulakeshi II*, much too happy at his chance victory, has taken a jibe at *Harṣa* in mentioning in his *Aihole* inscription dated 638 CE that *Harṣa*'s *Harṣa* (Joy) melted with fear at the huge loss of his war elephants that got trapped and killed in the gorges of *Vindhya* Mountains as his handiwork. In the very same inscription, he then calls *Harṣa*, the *Sakalottarapathanātha* (Entire North India's Lord).

Now, there have been only two famous *Vikramāditya*, the original one was *Skanda Gupta*, and the other one was *Harṣa Vardhana*. *Kalhana*, in his *Rājataranginī*, has erred in recognizing the *Vikramāditya* associated with *Māṭrgupta*¹²⁶ as *Harṣa Vardhana*, owing to his wrong genealogical calculations. It was actually *Skanda Gupta*, the son of *Kumāra Gupta I* (*Mahendrāditya*) and the grandson of *Candra Gupta II* (*Kalki Avatāra*), who had *Māṭrgupta*, a

¹²⁵ विक्रमादित्य भूपस्य कीर्तिसिन्धोः निदेशतः ।

श्रीमद् वररुचिः धीमांस्तनोति पत्रकौमुदीम् ॥ PK 1.2

¹²⁶ तत्रानेहस्युज्जयिन्यां श्रीमान्हर्षपराभिधः ।

एकच्छ्रवश्चक्रवर्ती विक्रमादित्य इत्यभूत् ॥ RT 3.125

नानादिगन्तराख्यातं गुणवत्सुलभं नृपम् ।

तं कविर्मातृगुप्ताख्यः सर्वास्थानस्मासदत् ॥ RT 3.129

Brahmin poet, employed in his service. The extremely poor but greatly learned *Mātrgupta* cherished a deep desire for achieving great prosperity from his king. This desire was suddenly and secretly fulfilled by *Skanda Gupta* (*Vikramāditya*) when *Hiranya*, the ruler of his tributary kingdom of Kashmir, died leaving the throne vacant. *Skanda Gupta* then sent *Mātrgupta* to deliver a sealed royal warrant to the ministers of *Hiranya* in Kashmir where, much to *Mātrgupta*'s surprise, the ministers accepted him as the ruler of Kashmir. *Mātrgupta*, overcome with joy and gratitude at this grand magnanimity of his king, much thanked him and ruled Kashmir for 4 years before abdicating the throne at his death. This was also the time when *Pravarasena II*, a nephew of *Hiranya* and the son of *Toramāṇa*, appeared to stake his claim to the Kashmir throne. *Mātrgupta* retired to *Vārāṇasī* where *Pravarasena II*, now the king, supported him with great respect. All this is described in the *Rājatarangiṇī* the genealogies of which have been discussed in a following section. *Skanda Gupta* is the legendary *Vikramāditya*¹²⁷ of Indian literature whose 32-statuettes throne was found by king *Bhoja*, who was said to be steeped in the *Sanātana* Vedic religion, who performed a horse-sacrifice, who exterminated many *Śakā*

¹²⁷ "Go, blameless one! These woes shall not fall to thy lot. By my favour thou shalt be happy throughout the whole of thy sojourn on earth." When *Siva* said this to *Malyavat*, that virtuous *Gaṇa* immediately disappeared. And he went and was conceived in *Ujjayini*, in the proper season, in the womb of the queen of King *Mahendraditya*. And at that time the god, whose diadem is fashioned of a digit of the moon, said to that king in a dream: "I am pleased with thee, King: so a son shall be born to thee, who by his might shall conquer the earth with all its divisions; and that hero shall reduce under his sway the Yakshas, Rakshasas, Pisachas and others even those that move in the air and dwell in Patala and shall slay the hosts of the Mlechchhas: for this reason he shall be named *Vikramaditya*, and also *Vishamasila*, on account of his stern hostility to his enemies." When the god had said this, he disappeared; and next morning the king woke up, and joyfully related his dream to his ministers. The armies of that *Vikramaditya* roamed over the earth like the rays of the sun, shedding into every quarter the light of order.

– The ocean of Story, Vol. IX, Book XVIII, C.H.Tawney (1924), pp.1-6

and *Hūnā*, who won the most kingdoms in all of India, who repopulated *Ayodhyā*, who was famous for his huge charities and whose reign was greatly appreciated by one and all. In time, the legends of *Skanda Gupta* (*Vikramāditya*) mixed up with the legends of *Harṣa Vardhana* (*Vikramāditya*) and gave rise to the semi-mythical personality of *Vikramāditya* that now stands explained.

Harṣa Vardhana too was known for his valor, charities and just rule but his inclination was largely Buddhist. His accounts have been largely left out by Brahmins from annals of Indian history because, firstly he was of the trader class (the 3rd Vedic caste of *Vaiśya*) and secondly, as Hiuen-Tsang mentions in his accounts, *Harṣa* had exiled 500 learned Brahmins on the occasion of his religious assembly at *Prayāga* sometime in 643 CE¹²⁸.

The much famous *Navaratna Pariṣada* (Council of nine gems), which is also mentioned by the poet *Ravikīrti*¹²⁹ of *Pulakeshi II*, belonged to the court of *Harṣa Vardhana* as is recounted by *Kālidāsa* himself in the *Jyotirvidābhāraṇa*:

¹²⁸ *Harṣa Vardhana* first invited these 500 learned Brahmins from all corners of India through his feudatories for religious debate with the Buddhists but then failed to accord them proper regard. On the very first day of assembly, he performed a greatly pompous worship to a golden image of Buddha, installing it on a makeshift tower and donating huge wealth to Buddhist scholars while leaving out the Brahmins. Some Brahmins, feeling greatly disrespected at this, secretly set fire to the tower where the Buddha statue was installed and then commanded a common man to stab *Harṣa* as he escaped from the tower. This attempt failed as *Harṣa* grabbed that man who was let go scot-free after he stated the reason truthfully. Following this, *Harṣa* donated to others as well and worshipped an image of *Śiva*, but he still exiled the most Brahmins there, earning himself the enmity of Brahmin community.

¹²⁹ The famous Aihole Inscription dated 634 CE (*Śaka* year 556):

येनायोजि नवेश्म स्थिरसर्थविद्वौ विवेकिना जिनवेश्म ।
स विजयतां रविकीर्तिः कविताश्रित कालिदास भारवि कीर्तिः ॥

नवरत्नानि - (Nine Gems)

धन्वन्तरिः क्षपणको अमरसिंहं शड्कु वेतालभट्ट घटकर्पर कालिदासाः ।
 छ्यातो वराहमिहिरो नृपते: सभायां रत्नानि वै वररुचिः नव विक्रमस्य ॥ JV 22.10
Dhanvantari, Kṣapaṇaka, Amarsingha, Śanku, Vetālabhaṭṭa, Ghaṭakarpara, Kālidāsa,
The famous Varāhamihira, are king's court's gems, and Vararuci is 9th, of Vikrama.

Note: *Dhanvantari* (the physician, author of medical treatise *Nighantu*), *Kṣapaṇaka* (the Jain sage *Siddhasena Divākara*), *Amarasimha* (the lexicographer of *Amarakośa*), *Śanku* (land records), *Vetālabhaṭṭa* (the sorcerer who described *Vikramāditya*'s heroics in *Vetāla Pañcavimśati*, author of *Nītipradīpa*), *Ghaṭakarpara*, *Kālidāsa* (the famed poet), *Varāhamihira* (the famed astrologer) and *Vararuci* (the famed scholar writer of *Prākrta Prakāśa* and *Patra Kaumudī* and the maternal uncle of the poet *Subandhu* of the *Vāsavadattā* fame).

Kālidāsa also mentions the other eminent courtiers at *Ujjain* court but doesn't mention *Bāṇabhaṭṭa*, the composer of *Harṣa-Carita*. It seems *Bāṇabhaṭṭa*, being located at the *Kannauj* court, having composed the *Harṣa-Carita* when *Harṣa* was only 16-17 years of age, had retired back to his village.

नृपसभायां पण्डितवर्गा - (King's Court's Scholars)

शड्कु सुवागवररुचिः मणिः अङ्गुदत्तो जिष्णुः त्रिलोचनहरो घटखर्पराख्य ।
 अन्येऽपि सन्ति कवयोऽमरसिंहपूर्वा यस्यैव विक्रम नृपस्य सभासदोऽमो ॥ JV 22.8
 सत्यो वराहमिहिर श्रुतसेननामा श्रीबादरायण मणित्थ कुमारसिंहा ।
 श्रीविक्रमार्क नृप संसदि सन्ति चैते श्रीकालतन्त्र कवयस्त्वपरे मदाद्या ॥ JV 22.9

Śanku, greatlyeloquent Vararuci, Maṇi, Aṅgudatta, Jiṣṇu, Trilocana, Hari (the head of the Charity and Religion), Ghaṭakarpara, Many other poets, like Amarasingha earlier, are in assembly of king Vikrama. Satyā, Varāhamihira, Śrutasena, Bādarāyaṇa, Maṇittha, Kumārasinḥa, Are (also) in the assembly of king Vikramarka, in addition to myself as author of Kālatantra (Kālāmṛta?).

Note: The *Jiṣṇu* mentioned here is perhaps *Jiṣṇugupta*, the son of *Amśūvarman* of Nepal who succeeded him briefly before being ousted by *Dhruva Deva*. It's said that he then took up residence in *Ujjain*.

Bāṇabhaṭṭa recounts that *Harṣa* started out on a *Digvijaya* (conquest of the quarters). Hiuen-Tsang states it to have started from east, before turning west, lasting for 5.5 years. He gives the numbers of *Harṣa*'s army at the start of his *Digvijaya* as 5,000 elephants, 20,000 horses and 50,000 infantry while *Kālidāsa* recounts these numbers at the end of *Digvijaya*:

सैन्य वर्णनम् - (Military Description)

यस्या अष्टादशयोजनानि कटके पादाति कोटि त्रयं
 वाहनं अयुतायुतं (11000) च नवतिः (+90) त्रिम्बाकृतिः (20^3) हस्तिनाम् ।
 नौका लक्षचतुष्टयं (4400) विजयिनो यस्य प्रयाणे भवत्
 सोऽयं विक्रम भूपतिः विजयते नान्यो धरित्रीधरः ॥ JV 22.12

Whose army is spread over 18 Yojana, foot soldiers are 3 lakh (300,000), Chariots are 11,090 and 8000 (20^3) are the Elephants, 4400 are the Boats, always victorious is whose march, He is this Vikrama, lord of Earth, victorious like him, there is no other king.

दिग्विजय वर्णनम् - ("Conquest of the Quarters" Description)

उद्धाम द्रविड द्रुमै एकपरशुः लाटा अटवी पावको
 वेल्लद्वृङ्ग भुजङ्गराज गरुडो गौडाब्धि कुम्भोद्धवः ।
 गर्जद् गुर्जर राज सिंधुः हरिः धारा अन्धकार अर्यमाः
 काम्बोज अम्बुज चन्द्रमा विजयते श्रीविक्रमार्को नृपः ॥ JV 22.14
*To trees of haughty Dravidā, an axe; to forest of Lāṭā, a fire;
 To snakes of Vanga, the Garuḍa; to ocean of Gauḍā, the Agastya;
 To roaring Gurjarā & Sindhu king, Viṣṇu; to darkness of Dhārā, Aryamā;
 To lotuses of Kāmbojā, the Moon; such king Vikramārka has won them all.*

According to the Jain *Pattavalis*, *Vikramāditya* (*Harṣa Vardhana*) was ordained into Jainism by *Siddhasena Divākara* (*Kṣapanaka*) in MNS (*Mahāvīra Nirvāṇa Saṃvat*) 470, which, corrected for the "Kali Epoch Error"¹³⁰, rightly comes to MNS 1124 (470+654) that is 598 CE (-526+1124). Similarly, other MNS dates that appear confusing or seem to suffer from anachronism can be properly redated.

¹³⁰ "Kali Epoch Error" is the error that mistakes the epoch year of *Kali-Yuga* to be 3102 BCE rather than 2448 BCE and which has also resulted in backshifting of many MNS dates of the Jains by 654 years as they have also used the *Kali* era in their underlying calculations.

Harṣa Vardhana actually succeeded *Mahāsenā Gupta* (*Gardabhilla* of the *Jain Pattavalis*, *Gandharvasena* of the *Purāṇā*) as overlord of *Mālava/Ujjain* after a brief 4-year takeover by the *Śakā*. This *Mahāsenā Gupta* of *Magadha*, who was attacked by 3 kings (the *Maukhari* king *Sarvavarman*, the *Tibet* king *Srong Tsan* and the *Kāmarupa* King *Sustitha Varman*), had shifted to Ujjain by displacing the *Kalacurī* king *Śāṅkaragāna* who had come to occupy Ujjain after *Viṣṇu Gupta I*, the last ruler of the Early *Gupta* Dynasty I. *Śāṅkaragāna* was the son of a *Kṛṣṇarāja* and likely the grandson of *Goparāja*, the known feudatory of *Bhānu Gupta*.

The account of *Gardabhilla* is provided in the *Jain Pattavalis* of *Merutunga* (14th Cen.), who sourced it from earlier *Prākṛt* texts, and the *Kālakācarya Kathānaka* that gives the date of invasion by *Śakā* as MNS 466, which, corrected for the “*Kali Epoch Error*”, gives us its true MNS date as 1120 (466+654) which equals 594 CE (-526+1120), the true date of invasion of *Mālava/Ujjain* by the *Śakā*. According to *Jain Pattavalis*, *Gardabhilla* ascended 13 years before the *Śakā* invaded Ujjain in 594 CE, which rightly comes to 581 CE, about the ascension time of *Mahāsenā Gupta*.

Now, *Mahāsenā Gupta* had 4 children: *Bhartrhari*¹³¹, *Deva Gupta I*, *Kumāra Gupta* and *Mādhava Gupta*. About 592 CE, *Deva Gupta I* (*Śankha* of the *Purāṇā*) tried to take over the reins of kingdom and wanted to eliminate his step-brothers (*Kumāra Gupta* and *Mādhava Gupta*) who were rescued by *Prabhākara Vardhana*¹³², the father of *Harṣa Vardhana*, and assigned in the service of brothers *Rājya Vardhana* and *Harṣa Vardhana* respec. *Bhartrhari* may have ruled for a year or two before becoming a Yogi under *Gorakhanātha*. It is

¹³¹ *Bhartrhari* learnt grammar from *Vasurata*, who is said to be a pupil of *Vasubandhu*. This is stated by *Siṃhasūriṇī*, a Jain author.

¹³² *Mahāsenā Gupta* ascended only in 581 CE, he was of the same age as that of *Prabhākara Vardhana* and his sons were the same age as *Harṣa Vardhana*. So, there is zero probability that his sister was married to *Āditya Vardhana*, the grandfather of *Harṣa Vardhana*. It must be the sister of his father *Dāmodara Gupta* who was married to *Āditya Vardhana*.

said he got disenchanted from the kingdom when he found out that his most beloved wife was cheating on him¹³³. Already angry at the escape of his step-brothers and coming to know of *Prabhākara Vardhana*'s death, *Deva Gupta I* invaded Kannauj (592 CE) and killed *Grahavarman*, the son-in-law of *Prabhākara Vardhana*. Coming to know of this, *Rājya Vardhana*, the elder brother of *Harṣa Vardhana*, marched to Kannauj and killed *Deva Gupta I* but, while returning, he himself was decoyed and killed treacherously by *Śāśāṅka*, the king of *Gauda* (Bengal) and an ally of *Deva Gupta I*. *Deva Gupta I* being killed, the throne of Ujjain reverted back to his father *Mahāsena Gupta (Gardabhillā)*.

Two years later in 594 CE, *Gardabhillā* kidnapped the sister *Sarasvatī* of a Jain monk *Kālakācarya* (son of a king *Vairisimha* of *Dhārā* near Ujjain) and refused to let her go. On the request of *Kālaka*, the *Śakā* (likely helped by *Śāṅkaragāṇa*¹³⁴) invaded Ujjain, freed the sister of *Kālaka*, exiled *Gardabhillā* and ruled *Mālava* for 4 years before being ousted by *Harṣa Vardhana* in 598 CE, who came there on the last leg of his *Digvijaya* (conquest of the quarters). Here started the *Vikrama* era. It's only due to his rather young age (21 years) at this time and his close association with the two other sons of *Mahāsena Gupta* that *Vikramāditya (Harṣa Vardhana)* was mistaken as a son of *Gandharvasena (Mahāsena Gupta)* and as a brother of *Bhartṛhari*. This story of *Harṣa Vardhana* is given in the *Bhaviṣya Purāṇa* as that of *Gandharvasena (Mahāsena Gupta / Gardabhillā)*, *Śankha (Deva Gupta I)*, *Bhartṛhari* and *Vikramāditya (Harṣa Vardhana)*, the Puranic pundit was probably not aware of the kidnapping story of *Sarasvatī*. Given next are the kings of major Indian kingdoms about the time of *Harṣa Vardhana*.

¹³³ A fruit, providing ever-youthfulness, was presented to *Bhartṛhari* by a sage that he gave to his beloved wife so she could always be youthful. She gave it to her paramour who gave it to a courtesan. The courtesan detested her lowly life and gave it to *Bhartṛhari* so that the righteous king could live long. This revealed to *Bhartṛhari*, the betrayal of his wife.

¹³⁴ His Abhona Copper Plate in Ujjain is dated 595 CE.

Gen	Year	Kannauj	Avantī/Ujjain	Magadha	Nepal	Kashmir
162	496	Īśoravarman	Bhānu Gupta (fd) Goparājña	Jīvita Gupta I	Vāmana Deva	Narendrāditya I (Lakṣmaṇa)
163	525	Īśoravarman (b) Sūryacarman	Viṣṇu Gupta I	Kumāra Gupta IV	Rāma Deva	Ramāditya I (Tunīgajīna III)
164	554	Saravarman	Śānikaraganya+	Dāmodara Gupta	Gāṇa Deva	Vikramāditya (c)/(sil) Rājā Gaja
165	583	Avantīvarman	Mahāsena Gupta+ (with Deva Gupta) Sakā+	Mahāsena Gupta Deva Gupta Mahāsena Gupta	Śiva Deva I Amīśvarman+	Balāditya (c) Śālivāhana, born 565 CE
166	612	Grahavarman	Harṣa Vardhana+ (n) born 577CE	Harṣa Vardhana+ (fd) Pūrnavarman (fd) Mādhava Gupta	Jiṣṇu Gupta Udaya Deva+ (b) Dhruva Deva+	Durlabhavardhana (Prajñānaśāti)
167	641	X (n) Son of Pūrnavarman?	X	Ādityasena+ (f) Mādhava Gupta	Narendra Deva+ (f) Udaya Deva	Durlabhaka (Pratāpāditya II)
168	670	Bhogavarmān	X	Deva Gupta II	Śiva Deva II	Candra pīda+
169	699	X	X	Viṣṇu Gupta II	Jaya Deva II	Tārāpiṭa+
170	728	Yaśovarman	Nāgabhaṭṭa I	Jīvita Gupta II	Vijaya Deva	Lalitāditya / Muktapīḍa+

Table 2.39
Synchronized List of Kings #Gen. 162-170



Figure 2.5

Autograph of *Harṣa Vardhana*: Banskhera Plate Ins.

One son of *Harṣa* died at 18 years of age, about 618 CE, as said to be predicted by *Varāhamihira*. He also had another son who died young as well and a daughter. All three of his children must have been born roughly 600 CE. When *Harṣa* won the *Dhārā* kingdom on western frontiers, he gave his daughter to prince *Dhruvabhaṭṭa* of *Dhārā*. By establishment of this matrimonial alliance, the *Dhārā* kingdom remained loyal to *Harṣa*. It was only *Dhārasena IV*, the son of *Dhruvabhaṭṭa*, who assumed the imperial title of *Paramabhaṭṭāraka Mahārājādhirāja Parameśvara Cakravartī* in 645 CE (*Vallabhi / Gupta Samvat 326*) and declared full independence. This was the time when *Harṣa*, taken ill, was to die in another 2 years and when his huge empire was on the verge of splitting-up.

Coming back to talk of the “*Kali Epoch Error*”, it’s now clear that it has resulted in backdating of *Vikrama* era by 654 years (3102-2448) as it mistakes the epoch year of *Kali-Yuga* to be 3102 BCE rather than 2448 BCE. The *Vikrama* era, with its epoch year tied to current *Kali* year 3045 (as per *Kālidāsa*’s *Jyotiḥvidyābhāraṇa*), started being considered wrongly from 3102 BCE instead of 2448 BCE, some 100-150 years after the death of *Harṣa Vardhana* in 648 CE. The fortunate thing is that the increased *Vikrama* year count and the backdating of *Vikrama* era cancelled out each other out leaving the most history told in *Vikrama* years intact. The Aihole inscription of Pulakeshin II, corresponding to 634 CE and dated both in *Śaka* era

(SS.556) as well as in *Kali* era (*Kali*.3735), tells us that, in the times of *Harṣa* himself, the Kali epoch year of *Āryabhaṭṭa* (3102 BCE) was already prevalent in the kingdoms south of Ujjain. This “*Kali Epoch Error*” spread to Ujjain as well within 100-150 years of the *Vikrama* era as the *Kali* epoch year of *Āryabhaṭṭa* prevailed over that of *Ujjain* tradition. Factually, both these *Kali* theories are wrong as a *Kali-Yuga* is only of 12 years, as will be discussed later. The earliest known inscription which explicitly uses the *Vikrama Saṃvat* is the Dhinkī Ins. of *Vikrama* year 794 (738 CE) and thought to be 738th year (-56+794) of *Vikrama*. But it is actually an inscription of the 140th year (794-654) of *Vikrama*. To get the true *Vikrama* years of all *Vikrama* era inscriptions, in accounting for the “*Kali Epoch Error*”, 654 should be subtracted from a given *Vikrama* year to get the true *Vikrama* year. Consider the *Kundeshvara* Copper Plate Inscription of *Vikrama* 1060 (CII, Vol. VII, 201, p.651) at Tikamgarh (78.50E, 24.44N) which specifies a Solar Eclipse on the *Śrāvāṇa* New Moon Day. The true *Vikrama* year is 406 (1060-654) rather than the stated year 1060 and the CE year stays at 1004 CE (-56+1060 = 598+406). As per the Vedic Calendar, the day of *Śrāvāṇa Amāvasyā* was Jul 20, 1004 CE and the max time of solar eclipse can be checked to be 08:11 IST. This also tells us that the Vedic calendar was still being computed correctly in some parts of India even in 1004 CE.

Given in the following table are some Indian Eras noted by Al-Biruni, an Arab scholar who recorded much information on Indian society and culture in his book in 1031 CE¹³⁵. Interestingly, he also states to have been told by some inhabitants that a *Sri-Harṣa* era lay about 400 years before that time (in 1031 CE). Clearly, even though the *Vikrama* era got dissociated with *Harṣa Vardhana*, some 100-150 years after his time due to the “*Kali Epoch Error*”, some people still retained memory of the time of *Harṣa* (592-647 CE) as being about 400 years earlier. Al-Biruni mentions that, as per a Kashmiri calendar he read, *Sri-Harṣa* era lay about

¹³⁵ Alberuni's India, Vol. II (1910, Kegan Paul), Chap. XLIX, pp.5-9

664 years after the epoch of *Vikrama* era. This is clearly the case of Kashmiris mistaking the *Vikrama* era to start at 57 BCE due to the “*Kali Epoch Error*”. This is why they stated the time of *Sri-Harṣa* as being about 664 years ($-56+664=608$, ~598) from *Vikrama* (57 BCE) epoch. So, it becomes clear that the *Sri-Harṣa* era mentioned by Al-Biruni is nothing but the *Vikrama* era (598 CE) of *Harṣa Vardhana*.

Some Eras Noted by Al Biruni (1031 CE) with Base Year corrected for the <i>Kali-Yuga Error</i>				
No.	Era Name	Era Year	Base Year (CE)	Correct Base Year (CE)
1	<i>Yazdajird</i>	400	632 (1031-400+1)	632
2	<i>Śaka</i>	953	78 (1031-953)	78
3	<i>Vallabhī / Gupta</i> (<i>Śaka</i> +241)	712	319 (1031-712)	319
4	<i>Vikrama</i> **	1087/1088	-56 (1031-1087)	598 (-56+654) **

Note: *Yazdajird* is a current year, all others are expired. Here, it seems that Al Biruni has incorrectly noted the *Vikrama* Year as 1088. It should have been 1087 for all these years to be mutually consistent.

Observation Year = 1031 CE
 Base Year = 1031 – (expired) Era Year = 1031 – (current) Era Year + 1
 ** Correct Base Year = Base Year + 654

Table 2.40

Eras noted by Al-Biruni in 1031 CE (Feb 25 or Mar 26)

The Veraval Inscription¹³⁶ of Chalukya *Arjunadeva* (1263 CE) also lists the years of *Vikrama* era, Mohammed era and *Vallabhī* era.

It's imperative that I also mention the historical misbeliefs of a south Indian monk *Kota Venkatachalam* (1885-1959 CE) who shifts the entire historical timeline of India by many centuries. Some of his blind followers, such as one *Vedveer Arya* (“*The Chronology of Ancient India*”), on account of their own lack of understanding, call Indian history a “*Victim of Concoctions and Distortions*” and repeatedly blame the western historians (“*Biased Western*

¹³⁶ Bhandarkar's List of the Inscriptions of Northern India, No. 565

Historian") for everything they themselves don't understand. Surely, some imperial historians such as Max Muller can be made out to be biased but this can't be said to be true for all western historians. These folks also have a hard time understanding even the simplest key dates such as that of *Buddha* (563-483 BCE) or that of *Chandragupta Maurya* (321 BCE). Because these key dates don't fit in their fanciful timeline, they altogether shift the epoch years of some well-established eras such as the *Saka* era (78 CE) and the *Gupta* era (319 CE). This displays their extremely poor knowledge of both history and science. They should know that these epoch years have been tested on many historical (relative chronology) and calendrical (eclipse, *Nakṣatra*, weekday) parameters before being fully accepted and are unassailable.

For their benefit, given below are some dates of these eras that prove their calendrical correctness, apart from their already being proved correct in their indicated historical timeframe:

No	Month	First Day	Full Moon Day
<i>Eran Ins. of Buddha Gupta</i> (<i>Gupta</i> year 165, S12 day of <i>Āśāḍha</i> Month, a Thursday) points to Jun 21, 484 CE (319+165):			
6a	<i>Āśāḍha</i> (<i>Ādhika</i>)	12.05.484	27.05.484
6b	<i>Āśāḍha</i>	10.06.484 S12 Day: 21.06.484 (Thu)	25.06.484
7	<i>Śrāvāṇa</i>	10.07.484	24.07.484
<i>Bantia Plates of Dhārasena I</i> (<i>Gupta</i> year 254, Solar eclipse on New Moon Day of <i>Vaisākha</i> month) points to Mar 19, 573 CE (319+254):			
3	<i>Caitra</i>	19.02.573	05.03.573
4	<i>Vaisākha</i>	21.03.573 SE: Max@ 19.03.573 15:10	04.04.573
5	<i>Jyeṣṭha</i>	19.04.573	03.05.573

Table 2.41
Two Eclipse dates of *Gupta* era

No	Month	First Day	Full Moon Day
Hyderabad copper plates of Pulakeshin II (<i>Śaka</i> year 535, Solar eclipse on the New Moon day of <i>Bhādrapada</i> month) equate to Jul 23, 613 CE (78+535) (Mistake in Ins. as <i>Śaka</i> year 534):			
7	<i>Śrāvāna</i>	25.06.613	08.07.613
8	<i>Bhādrapada</i>	24.07.613 SE: Max@ 23.07.613 11:53 IST	07.08.613
9	<i>Aśvin</i>	23.08.613	05.09.613
Janjira Plates of <i>Aprājita</i> (<i>Śaka</i> year 915, Solar eclipse on New Moon Day of <i>Śrāvāna</i> month, Cyclic Year <i>Vijaya</i> , Sunday, Sun in Leo) points to Aug 20, 993 CE (78+915):			
6	<i>Āṣāḍha</i>	24.06.993	07.07.993
7	<i>Śrāvāna</i>	23.07.993	05.08.993
8	<i>Bhādrapada</i>	22.08.993 SE: Max@ 20.08.993 14:07 IST	04.09.993
Thana Plates of <i>Nāgarjuna</i> (<i>Śaka</i> year 961, Solar eclipse on New Moon Day of <i>Śrāvāna</i> month, Cyclic Year <i>Pramādī</i> , Wednesday) points to Aug 22, 1039 CE (78+961):			
6	<i>Āṣāḍha</i>	26.06.1039	09.07.1039
7	<i>Śrāvāna</i>	25.07.1039	07.08.1039
8	<i>Bhādrapada</i>	24.08.1039 SE: Max@ 22.08.1039 18:46 IST	06.09.1039

Table 2.42
Three Eclipse dates of *Śaka* era

The calendar months given above are purely Vedic calendar months, and end with a new moon day, and may not always confirm to the calendrical calculations by *Siddhānta* texts that came in vogue about 252 CE from after the time of *Vṛddha Garga* (252 CE) and *Āryabhaṭṭa* (499 CE). The farther we move down in time from 252 CE, the more the likelihood of shift of a month or two in the *Siddhānta* calculations. Now, it can be seen that, wherever the cyclic years and weekdays are also given, they too are a perfect fit. Similarly, by a test of Eclipses and relative chronology, the epoch year of *Kalacuri* era is known to be 249 CE and that of *Newari* /

Nepālī era (solar eclipse on *Kārtika Amāvasyā* in year *Newari.511*) is known to be 879 CE. The epoch year of *Kollam* era (*Kali.4702 = Kollam.776*, by the Trivandrum Ins. of *Vira Ravivarman*) is also known to be 825 CE. Many more such inscriptions can thus be tested.

Kota Venkatachalam and his followers also maintain that *Śaka* era (78 CE) was started by *Śālivāhana* who they think to be a grandson of *Vikramāditya* of Ujjain. This is obviously incorrect as the *Śaka* era was started by *Śaka* satrap *Caṣṭana* in Ujjain. Also the lifetime of *Śālivāhana* was 565-515 CE and his maternal-grandfather was the *Gonanda Vikramāditya* of Kashmir, not of Ujjain. In South India, the word *Śaka*, that represents a tribe, has somehow wrongly come to mean a *Samvat* (era) over time. The phrases like “*Yudhiṣṭhira Śaka*” and “*Śālivāhana Śaka*” that are in vogue in South-India are totally meaningless, the correct phrases to be used would be “*Yudhiṣṭhira Samvat*” and “*Śālivāhana Samvat*” respectively. Below, the epoch years of some common Indian Eras are recapitulated:

No.	Indian Eras (<i>Samvat</i>)	Epoch Year
1	<i>Kṛta / Mālava</i> (explained ahead)	94 BCE (-93)
2	(Incorrect) <i>Vikrama</i>	57 BCE (-56)
3	<i>Śaka</i>	78 CE
4	<i>Kalacuri</i>	249 CE
5	<i>Kali (Vṛddha Garga, Ujjain)</i> in 252 CE	2448 BCE (-2447)
6	<i>Gupta / Vallabhī</i>	319 CE
7	<i>Kali (Āryabhaṭṭa)</i> in 499 CE	3102 BCE (-3101)
8	<i>Lāṭadeva Era</i> (of <i>Surya Siddhānta</i>)	505 CE
9	(Corrected / True) <i>Vikrama</i>	598 CE
10	<i>Aṃśuvarman</i> in 607 CE (SS.529)	578 CE
11	<i>Kollam</i>	825 CE
12	<i>Newari / Nepālī</i>	879 CE

Table 2.43
Epoch years of some common Indian Eras

2.10 *Kṛta/Mālava Era*

It's now well established that *Harṣa Vardhana (Vikramāditya)* found the *Vikrama* Era only in 598 CE and that its 57 BCE date is a misconception. Also, it's already stated that the *Kṛta/Mālava* Era, thought to be identical with the incorrect *Vikrama* Era of 57 BCE, is quite distinct from it. Knowing that the *Vikrama* Era started in 598 CE, the *Kṛta/Mālava* Era cannot be considered identical to *Vikrama* Era anymore as doing that wrongly places *Govinda Gupta*, the son of *Candra Gupta II*, in 1122 CE (Ins. MS.524) and *Yaśodharman*, the subduer of the Śakala (Sialkot) king *Mihirakula II*, in 1187 CE (Ins. MS.589). But the overall historical placements lined up well when the epoch year of *Kṛta/Mālava* Era was taken to be at 57 BCE, even if mistakenly. So, the true epoch year of *Kṛta/Mālava* Era must be near to 57 BCE and must be the start of a *Kṛta-Yuga*. As 94 BCE is the 1st year of 35th *Kṛta-Yuga* and is near to 57 BCE, it becomes known that the true epoch year of *Kṛta/Mālava* era is 94 BCE. That the *Kṛta* Era and the *Mālava* Era are one and the same is already known to us by the Mandasor Inscription¹³⁷ of (*Aulikara*) *Naravarman* dated MS.461 (368 CE). That the epoch of *Kṛta/Mālava* era is indeed 94 BCE can be further verified by those inscriptions of *Kṛta/Mālava* Era that mention either an eclipse or a *Nakṣatra*. As no presently known *Kṛta/Mālava* inscription mentions a lunar/solar eclipse, its accuracy can be alternatively gauged by the slightly revised historical placements of some inscriptions.

The MS.524 Ins. of *Govinda Gupta*, the son of *Candra Gupta II* (380-414 CE), which is taken to be of 468 CE (-56+524) now gets correctly placed in 431 CE (-93+524). As *Candra Gupta II* ruled for 34 years up to 414 CE, he must have lived fully at least up to 60-65 years of age, when his sons would have been 30-35. If *Govinda Gupta* was 30-35 years old in 414 CE, he would be 84-89 years old by 468 CE, quite an unlikely age for having left an Inscription. But

¹³⁷ श्रीमालवगणाम्नाते प्रशस्ते कृतसंज्ञिते ।

एकषष्ठ्यधिके प्राप्ते समाशत चतुष्टये ॥ - Mandasor Inscription, S. 461

by the revised date of Ins. as 431 CE, it's quite likely for him to have written the Ins. at 47-52 years of age. Similarly, it becomes known that the Haraha Ins. of *Īśanavarman* (S.611) is that of *Kṛta/Mālava* era, this correctly place him in 518 CE (-93+611) rather than in 555 CE (-56+611), about the beginning of his reign in Gen.163 (525-554 CE). Combining these two inscriptions with that of *Ādityasena* stating his lineage, we are able to accurately reconstruct the royal lines at *Magadha* and *Kannauj*.

Gen	Year	Early Gupta Dynasty II (at Magadha)	Maukhari Dynasty (at Kannauj)
158	380	<i>Candra Gupta II</i> (<i>Kalki Avatāra</i>)	X
159	409	<i>Govinda Gupta</i> (Ins. MS.524, 431 CE)	X
160	438	<i>Kṛṣṇa Gupta</i> (n) son of Govinda Gupta or <i>Kumāra Gupta I</i>	<i>Harivarman</i>
161	467	<i>Harṣa Gupta / Balāditya</i> (n) captured <i>Mihirakula II</i> , as per Hiuen-Tsang	<i>Ādityavarman</i> (w) <i>Harṣaguptā</i> , sister of <i>Harṣa Gupta</i>
162	496	<i>Jīvita Gupta I</i>	<i>Īśavaravarman</i>
163	525	<i>Kumāra Gupta IV</i>	<i>Īśanavarman</i> (b) <i>Sūryavarman</i> (<i>Haraha Ins. MS.611, 518 CE</i>)
164	554	<i>Dāmodara Gupta</i>	<i>Saravaravarman</i>
165	583	<i>Mahāsenā Gupta</i>	<i>Avantīvarman</i>
166	612	<i>Pūrṇavarman+</i> [As (fd)] <i>Mādhava Gupta+</i> [As (fd)]: (f) <i>Mahāsenā Gupta</i>	<i>Grahavarman</i> (b?) <i>Pūrṇavarman</i> (bil) <i>Harṣa Vardhana+</i>
167	641	<i>Ādityasena</i> (Ins. VS.66, 664 CE)	X (n) <i>Pūrṇavarman's son?</i>

Table 2.44Synchronized List of *Magadha* and *Kannauj* #Gen. 158-167

Similarly, the ending years of Yaśodharman (Risthal Ins. MS.589), who defeated the Śakala (Sialkot) king Mihirakula II with the help of Narasiṁha Gupta, are now accurately placed about 496 CE (-93+589), rather than about 533 CE (-56+589). Mihirakula II was the son of Toramāṇa of Kashmir who had run away to Śakala and captured it. He was captured by Harṣa Gupta (*Balāditya*) when he attacked him but set free on the intervention of *Balāditya*'s mother. His brother, who had accompanied him, had meanwhile left with the military for Śakala and assumed the throne there. Mihirakula II found refuge with his another brother Pravarasena II, the king of Kashmir, but there he fomented unrest, murdered Pravarasena II and assumed the throne. But he died quickly thereafter. So, Yaśodharman is now correctly placed in Gen.161 (467-496 CE) where Narasiṁha Gupta, Mihirakula II and Harṣa Gupta already belong. The revised timeline of his lineage, as per his Risthal Inscription and the Ins. of his father Prakāśadharman (MS.572, 479 CE) who had defeated Toramāṇa, is thus: (*Dravya Vardhana* ~276 CE, *Druma Vardhana* ~305 CE, *Jaya Vardhana* ~334 CE, *Ajita Vardhana* ~363 CE, *Vibhīṣaṇa Vardhana* ~392 CE, *Rājya Vardhana* ~421 CE, *Prakāśadharman* ~450 CE, Yaśodharman ~479 CE).

Similarly, other *Kṛta/Mālava* inscriptions can be corrected thus:

- The Nandsa (Udaipur, Rajasthan) Inscription of *Shaktiganguru*, of the *Kṛta* year 282 stands redated to 189 CE.
- The Badva (Kota, Rajasthan) Inscription of the Maukhris, of the *Kṛta* year 295, stands redated to 202 CE.
- The Vijayagarh (Bharatpur, Madhya Pradesh) Stone Pillar Inscription of *Viṣṇuvardhan*, of *Kṛta* year 428 stands redated to 335 CE. The true timeline of lineage of *Viṣṇuvardhan* would thus be: (*Vyaghraṛāṭa* ~248CE, *Yaśorāṭa* ~277CE, *Yaśovardhan* ~306CE, *Viṣṇuvardhan* ~335CE).
- The last known *Kṛta/Mālava* inscription, the Mungthala (Rajasthan) Ins. of KS.894, stands redated to 801 CE.

The table below gives the actual timeline of Aulikara Dynasty of Daśapura (Mandasor), to which *Naravarman* belonged:

Gen	Year	Aulikara at <i>Daśapura</i>	Kṛta/Mālava Inscriptions (KS / MS)
155	293	<i>Jayavarman</i>	X
156	322	<i>Simhavarman</i>	X
157	351	<i>Naravarman</i>	Mandasor Ins. MS.461 (368 CE); Bihar Kotra Ins. MS.474 (381 CE)
158	380	<i>Viśvavarman</i>	Gangadhar Ins. KS.480 (387 CE) - <i>Viśvavarman</i> , son of <i>Naravarman</i>
159	409	<i>Bandhuvarman</i>	Mandasor Ins. MS.493 (400 CE) - by poet <i>Vatsabhāṭī</i> ; (26. <i>His son king BANDHU VARMAN...</i> , 27. <i>He is handsome, young, fit for battles...</i>) Mandasor Ins. MS.529 (436 CE) - refers to <i>Viśvavarman</i> and <i>Bandhuvarman</i> as feudatories of <i>Kumāra Gupta I</i> (<i>Mahendrāditya</i>)

Table 2.45

Aulikara Dynasty of *Daśapura* (Mandasor) - Mālava / Kṛta Inscriptions

Now, to discuss the origin of *Kṛta/Mālava* era, it's already stated that there was great confusion regarding the actual time spans of *Mahā-Yugā* after the *Mahābhārata* war in 827 BCE. The 29th *Mahā-Yuga* which started in 814 BCE, 13 years later of *Mahābhārata* war, was actually never recognized; no references later of 28th *Mahā-Yuga* are to be found in the *Purāṇā*. But, sometime before 94 BCE, some learned Brahmin took stock of the situation and correctly calculated that the year 94 BCE was to be the first year of (35th) *Mahā-Yuga* and the (35th) *Kṛta-Yuga*. This was the time when the Śunga ruler *Vasumitra*, grandson of *Puṣyamitra*, was ruling both Ujjain and Magadha and he must have been advised in this regard. It can be seen from the following table that 94 BCE falls in the reign time of the Śunga king *Vasumitra* who ruled in 141st generation. The Śungā were themselves Brahmins and must have known the importance of this, that's how the *Kṛta* Era is most likely to have started in Ujjain.

Gen	Year	<i>Ujjain / Magadha</i>	Gen	Year	<i>Ujjain / Magadha</i>
130	-432	<i>Nandīvardhana / Avantīvardhana</i>	138	-200	Śatadhanvā (b?) Samyuta / Śāliśuka / Somaśarmā
131	-403	<i>Mahānandī / Kākavarṇa / Kālāśoka</i> 392 BCE	139	-171	Bṛhadratha Puṣyamitra+ 180 BCE
132	-374	<i>Mahāpadma Nanda</i> (c)Pāṇini: grammarian	140	-142	Agnimitra
133	-345	<i>Dhanā Nanda</i> (b) 08 Other Nanda Sons	141	-113	Vasumitra (n) started the Krta/Mālava Era
134	-316	<i>Candra Gupta Maurya+</i> 321 BCE	142	-84	Bhagabhadra
135	-287	<i>Bindusāra</i> 297 BCE	143	-55	Devabhūti
136	-258	<i>Aśoka</i> 264 BCE	144	-26	Vasudeva Kanva+
137	-229	<i>Kuṇāla</i> (b) Daśaratha / Sampāti+	145	3	Bhūmimitra

Table 2.46
Kings of Ujjain and Magadha #Gen. 130-145

It could be *Patañjali* (Gen.139, 172 BCE), the great sage of immense intellect, who first noticed this error in connection with the time of horse sacrifice of *Puṣyamitra*. It's known that *Patañjali* was the chief officiator of *Puṣyamitra*'s horse sacrifice in his youth and that he composed the *Mahābhāṣya* and the *Yogaśutra* later of this. This fact must have ultimately got conveyed to *Vasumitra*, the grandson of *Puṣyamitra*, who then started the *Krta/Mālava* Era in 94 BCE, the first year of 39th *Krta-Yuga*. It can be seen there is no place for any *Vikramāditya* in generations 142/143 wherein the year 57 BCE falls.

2.11 Yogi Gorakhanātha

It's known that *Bhartrhari*, the son of *Mahāsenā Gupta*, and *Narendra Deva*, the king of Nepal, were associated with the great Yogi *Gorakhanātha*. *Bhartrhari*, who was king for a short time, got

disenchanted from the world and, becoming a disciple of *Gorakhanātha*, turned into a famed philosopher. As explained previously, *Bhartṛhari* was mistaken to be an elder brother of *Vikramāditya* (*Harṣa Vardhana*). As per the accounts of Chinese traveler I-tsing, *Bhartṛhari* (Gen.166, 612 CE) died in 650 CE. Also, *Gorakhanātha* is also known to have visited Nepal during the reign of *Narendra Deva* (Gen.167, 641 CE) who ruled there in the generation next of *Harṣa Vardhana*. This becomes known to us from the Chinese history of T'ang dynasty which records the two visits of imperial ambassadors to Nepal, in 643/657 CE, during the reign of *Narendra Deva* (*Na-Ling-Ti-Po*), as also from the Ins. (Amśuvarman Era, AS.153: 729 CE) of *Jaya Deva II*. *Narendra Deva* was the son of *Udaya Deva*, the father of *Śiva Deva II* and the grandfather of *Jaya Deva II*.

Pūraṇ Bhagat (Gen.166, 612 CE), the son of king *Śālivāhana* / Salbahan of Punjab (565-515 CE) who ruled from *Śakala* (Sialkot), and his younger brother *Rājā Rasālu* are also stated to be disciples of *Gorakhanātha*¹³⁸.

¹³⁸ "Once there lived a great Rāja, whose name was Sâlbâhan, and he had two Queens. Now the elder, by name Queen Achhrâ, had a fair young son called Prince Pûran; but the younger, by name Lonâ, though she wept and prayed at many a shrine, had never a child to gladden her eyes. So, being a bad, deceitful woman, envy and rage took possession of her heart, and she so poisoned Rāja Sâlbâhan's mind against his son, young Pûran, that just as the Prince was growing to manhood, his father became madly jealous of him, and in a fit of anger ordered his hands and feet to be cut off. Not content even with this cruelty, Rāja Sâlbâhan had the poor young man thrown into a deep well. Nevertheless, Pûran did not die, as no doubt the enraged father hoped and expected; for God preserved the innocent Prince, so that he lived on, miraculously, at the bottom of the well, until, years after, the great and holy Guru Goraknâth came to the place, and finding Prince Pûran still alive, not only released him from his dreadful prison, but, by the power of magic, restored his hands and feet. Then Pûran, in gratitude for this great boon, became a faqîr, and placing the sacred earrings in his ears, followed Goraknâth as a disciple, and was called Pûran Bhagat."

- Tales of the Punjab (1917), Flora Annie Steel, pp.234-235

So, while *Bhartrhari*, *Pūraṇ Bhagat* and *Rājā Rasālu* belonged to Gen.166, *Narendra Deva* belonged to Gen.167. As all 4 of them existed in the same time and were associated with *Gorakhanātha* conclusively, the life period of great Yogi *Gorakhanātha* becomes known to us quite clearly as being about 570-650 CE and he may be allotted to Gen.166 (612 CE). It was yogi *Gorakhanātha* who introduced the yoga of body discipline known as the *Hṛdayoga*.

2.12 King *Bhoja*

The greatly learned king *Bhoja* is another legend of Indian history that is also said to have discovered the royal throne of *Vikramāditya* fitted with 32 magical statuettes. On an analysis of the various inscriptions and some dates found by James Tod (*Samvat* 631 and 721) in a Jain manuscript, as also a date indicated by Abul Fazl, a scholar with Mughal king Akbar (1556 CE), it becomes quite clear that there were 6 different *Bhoja* kings. These six kings named *Bhoja*, in the chronological order, are:

1. *Bhoja*, the son of *Guhadatta*, of the Guhila dynasty of Mewar, in the Gen.164 (554-583 CE)
2. *Bhoja*, the son of *Bhīma* and the father of *Māna Mori*, of unknown dynasty, in the Gen.168 (670-699 CE)
3. *Kālabhoja* (*Bappā Rāwal*), the son of *Mahendra* II and the grandson of *Aparājita*, of the Guhila dynasty of Mewar, in the Gen.171 (757-786 CE)
4. *Mihira Bhoja*, the son of *Rāmabhadra* and the grandson of *Nāgabhaṭṭa* II of the *Gurjara-Pratihāra* dynasty of Kannauj, in Gen.174 (844-873 CE)
5. *Bhoja* II, the son of *Mahendrapāla* and the grandson of *Mihira Bhoja*, of the *Gurjara-Pratihāra* dynasty of Kannauj, in Gen.176 (902-931 CE)
6. *Bhojadeva*, the son of *Sindhurāja* and the grandson of *Siyāka* II, of the *Parmāra* dynasty of *Dhārā* and Ujjain, in the Gen.180 (1018-1047 CE)

The inscriptions may be summed up thus: Abul Fazl date of S.545, by the *Vallabhī/Gupta* era, correctly gives the time of *Mihira Bhoja* as 864 CE and also by the *Mahāvīra Nirvāṇa* era corrected for “*Kali Epoch Error*” (MNS.1199=545+654), correctly gives the time of *Bhoja*, the father of *Māna morī* as 673 CE. The first date of S.631 of the Jain Manuscript of James Tod, by the corrected *Mahāvīra Nirvāṇa* era (MNS.1285), correctly gives the time of *Kala Bhoja* as 759 CE. The second date of S.721 of the Jain Manuscript of James Tod, also considered by the corrected *Mahāvīra Nirvāṇa* era (MNS.1375), correctly gives the time of *Mihira Bhoja* as 849 CE. The S.770 date of Ins. of *Māna Morī*, considered by the *Vikrama* era, correctly gives 714 CE as his time. The sister of *Māna Morī* was married to *Mahendra II*, the father of *Kālabhoja*.

The *Guhila dynasty* started from the Brahmin *Guhadatta* and established itself in Mewar. There is some confusion as to who originally held the title of *Bappā Rāwal* (“founding father”) but it is generally thought to be *Kālabhoja*.

<i>Gen</i>	<i>Year</i>	<i>Guhila Dynasty</i>	<i>Gen</i>	<i>Year</i>	<i>Guhila Dynasty</i>
163	525	<i>Guhadatta</i>	171	757	<i>Kālabhoja/ Bappā Rāwal</i>
164	554	<i>Bhoja</i>	172	786	<i>Khuman (n) Invasion of Chittor from Kabul 812 CE)</i>
165	583	<i>Mahendra</i>	173	815	<i>Bhartripad</i>
166	612	<i>Nāgāditya</i>	174	844	<i>Siṁha jī</i>
167	641	<i>Jyelā / Śilāditya</i> (Ins. VS.702: 646 CE)	175	873	<i>Allāta</i> (n) killed <i>Devapāla</i>
168	670	<i>Aparājita</i> (Ins. VS.717)	176	902	<i>Nirvahana</i>
169	699	<i>Mahendra II (n) married sister of Māna Morī</i>	177	931	<i>Sālavāhana</i>
170	728	...	178	960	<i>Śakti Kumar</i> (Ins. VS.1034: 978 CE)

Table 2.47

The *Guhila* Dynasty of Mewar #Gen. 163-178

Given below are the *Paramāra* and *Gurjara-Pratihāra* dynasties, both of which originated in *Nāgabhaṭṭa I* (Gen.170, 728 CE):

<i>Gen</i>	<i>Year</i>	<i>Avantī/Ujjain</i>	<i>Kannauj</i>
166	612	<i>Harṣa Vardhana</i>	<i>Grahavarman</i> (<i>b?</i>) <i>Pūrṇavarman</i> (<i>bil</i>) <i>Harṣa Vardhana+</i>
167	641	X	X (<i>n</i>) <i>Pūrṇavarman's son?</i>
168	670	X	<i>Bhogavarman</i>
169	699	X	X
170	728	<i>Nāgabhaṭṭa I</i> (<i>n</i>) defeated by <i>Dantidurga</i>	<i>Yaśovarman</i> (<i>Died VS 807-811: 751-755 CE</i>)
171	757	<i>Kakkuka / Kakutstha+</i> (<i>b</i>) <i>Devarāja / Devaśakti+</i>	<i>Amarāja</i> <i>Indrāyuddha / Vajrāyuddha +</i>
172	786	<i>Vatsarāja</i> (<i>Ins. SS.717: 795 CE</i>)	<i>Cakrāyuddha: (fd) of Dharampāla</i> <i>Nāgabhaṭṭa II+ (b?) Vatsarāja</i>
173	815	<i>Upendra / Kṛṣnarāja</i> (<i>n</i>) became Feudatory of <i>Amogha Varṣa</i>	<i>Rāmabhadra</i> (<i>n</i>) defeated by <i>Devapāla</i>
174	844	<i>Vairiśimha I</i>	<i>Mihira Bhoja</i> (<i>Ins. VS.893: 837 CE, VS.919: 863 CE</i>)
175	873	<i>Siyāka I</i>	<i>Mahendrapāla</i> (<i>Ins. VS.955: 899CE</i>)
176	902	<i>Vākpati I / Vappairāja</i>	<i>Bhoja II</i> <i>Mahipāla+</i>
177	931	<i>Vairiśimha II</i>	<i>Mahendrapāla II (Mahendra)</i>
178	960	<i>Siyāka II / Harṣadeva</i> (<i>Ins. VS.1005: 949 CE</i>)	<i>Vijayapāla</i>
179	989	<i>Muñja</i> (<i>b</i>) <i>Sindhurāja+</i>	<i>Rājyapāla</i> (<i>n</i>) fled against forces of <i>Mahmud of Ghazni</i> in 1018 CE
180	1018	<i>Bhojadeva</i> (<i>Ins. VS.1074: 1018 CE, VS.1103: 1047CE</i>)	<i>Trilocanapāla</i> (<i>b</i>) <i>Jasapāla+</i> (<i>n</i>) died 1036 CE
Note:		At Ujjain / Dhārā: <i>Paramāra Dynasty</i> (Gen.170-180) At Kannauj: <i>Gurjara-Pratihāra Dynasty</i> (Gen 172-180)	

Table 2.48

Kings of *Paramāra* Dynasty & *Gurjara-Pratihāra* Dynasty #Gen. 166-180

It seems that *Upendra / Krṣṇarāja*, supposedly the *Paramāra* dynasty founder, was a son of *Vatsarāja*. Also, *Nāgabhaṭṭa II*, the founder of *Gurjara-Pratihāra* dynasty at Kannauj, who captured it from *Cakrāyuddha* and moved there, looks to be a brother of *Vatsarāja* rather than his son as both exist in the same generation. Both *Nāgabhaṭṭa II* and *Vatsarāja* were likely the sons of *Devarāja*, a nephew of *Nāgabhaṭṭa I*, who was perhaps a descendant of *Vairīsimha* (Gen.165), the king of *Dhārā* (near Ujjain) mentioned as the father of *Kālakācarya* in Jain texts. *Upendra / Krṣṇarāja*, the son of *Vatsarāja* at *Avantī / Ujjain*, became a feudatory of *Amoghavarṣa*.

The *Bhoja* who is said to have discovered the magical 32-statuettes throne of *Vikramāditya* and is associated with many literary works is undoubtedly *Bhojadēva*, the *Parmāra Bhoja*, the son of *Sindhurāja*, who ruled from *Dhārā & Ujjain*. The magical throne discovered by *Bhoja* belonged to *Skanda Gupta* (Gen.160, 438 CE), the original *Vikramāditya* who was the son of *Kumāra Gupta I (Mahendrāditya)* and the grandson of *Candra Gupta II (Kalki Avatāra)*. The Jain scholar *Merutunga*, in his *Prabandha Cintamani*, states that *Bhoja* ruled for 55 years, 7 months and 3 days which time spans nearly 2 generations and which seems to be quite correct. It's known that *Paramāra Bhoja* succeeded his father *Sindhurāja* at a young age. The literary works¹³⁹ of *Bhoja* cover many diverse topics such as grammar, poetry, architecture, yoga and philosophy. He established a centre for *Saṃskṛt* studies in *Dhārā* which was called *Bhojasālā* and which housed a temple of goddess *Sarasvatī*. The scholar *Bhāskara Acarya* (born SS.1036, 1114 CE), who wrote the mathematical treatise *Siddhānta Śiromani*, is stated to be born in the 6th generation¹⁴⁰ of *Bhāskarabhaṭṭa*, a scholar who was awarded the title of *Vidyapati* by *Paramāra Bhoja*. As the generation time of

¹³⁹ *Bhujabalabhīma, Campūrāmāyaṇa, Cārucārya, Rājamārtanda, Rājamrigankakaraṇa, Samarāṅgaṇasūtradhāra, Sarasvatīkaṇṭhabharana, Śālihotra, Śrīṅgaraprakāśa, Śrīṅgāramanjarikathā, Tattvaprākaśa, Vyavahāramanjarī*

¹⁴⁰ [*Bhāskara Bhaṭṭa, Govinda, Prabhākara, Manoratha, Maheshvara, Bhāskara*]

Bhāskara Acarya falls at 1143 CE, the generation time of *B* *Bhāskarabhaṭṭa* can be calculated to be 998-1027 CE, 145 years (5*29) before him, which is quite right. According to Muslim historians, Mahmud of Ghazni, after vandalizing Somnath, changed his route to avoid a confrontation with a Hindu king named *Paramdev* which is undoubtedly a reference to *Paramāra Bhoja*.

2.13 *Rājatarāṅgiṇī* and Kings of Kashmir

The *Rājatarāṅgiṇī* of *Kalhaṇa*, once understood properly, is a landmark historical document detailing the succession of kings of Kashmir starting with *Gonanda I*, one generation before that of the *Mahābhārata* war. Because the actual time of *Mahābhārata* and that of *Vikramāditya* was not known to *Kalhaṇa* clearly, as also to all others until now, the placement of *Gonanda I* remained uncertain. But as the time of *Mahābhārata* war is now conclusively known to be 827 BCE, *Gonanda I* can be placed quite accurately in Gen.115, alongside *Kṛṣṇa* and *Jarāsamṛda*.

Aided by only four key dates, 2 of the end points and 2 from the middle, we are able to accurately map out all the generations of Kashmir kings to their actual timeframes:

1. *Gonanda II* (810-780 BCE), 17 years after *Mahābhārata* war
Meghavāhana (380-409 CE), the son-in-law of *Bala Varman* of *Kāmarupa* Dynasty to which *Bhāskara Varman*, the feudatory of *Harṣa Vardhana* belonged
2. *Muktapīda Lalitāditya* (~724-753 CE), a contemporary of *Yaśovarman* of Kannauj
3. *Jayasimha* (1128-1157 CE), under whom *Kalhana* completed the *Rājatarāṅgiṇī* in 1150 CE

Listed in the table given below are all the kings of Kashmir, sparing the ones that ruled substantially, for more 3-5 years each:

Gen	Year	Kashmir King	Gen	Year	Kashmir King
115	-867	Gonanda I	137	-229	Siddha
116	-838	Dāmodara I (w) Yaśomati	138	-200	Utpalākṣa
117	-809	Gonanda II (+No Lost List of 35 kings)	139	-171	Hiranyakṣa
118	-780	Lava	140	-142	Hiranyakula
119	-751	Kuśeśaya	141	-113	Vasukula
120	-722	Khagendra	142	-84	Mihirakula I (n) Killed 3 Lac Buddhist
121	-693	Surendra	143	-55	Vaka
122	-664	Godhara	144	-26	Kṣitinanda
123	-635	Suvarṇa	145	3	Vasunanda
124	-606	Janaka	146	32	Nara II
125	-577	Śacinara	147	61	Akṣa
126	-548	Aśoka	148	90	Gopāditya
127	-519	Jalauka I	149	119	Gokarṇa
128	-490	Dāmodara II	150	148	Narendrāditya I (Khingkhila)
129	-461	Huška	151	177	Yudhisthira I (n) was blind
130	-432	Abhimanyu I	152	206	Pratāpāditya I+
131	-403	Gonanda III	153	235	Jalauka II
132	-374	Rāvaṇa	154	264	Tuṅgajina I
133	-345	Vibhīṣaṇa II	155	293	Vijaya+
134	-316	Nara I	156	322	Jayendra

Table 2.49
Kings of Kashmir #Gen. 115-156

Gen	Year	Kashmir King	Gen	Year	Kashmir King
157	351	<i>Samdhimati</i> (Āryarāja)	171	757	<i>Vajrāditya II</i> <i>Jayapīda+</i>
158	380	<i>Meghavāhana</i> (<i>fil</i>) <i>Bala Varman</i>	172	786	<i>Vinayāditya+</i> (<i>f</i>) <i>Vajrāditya II</i>
159	409	<i>Śreṣṭhasena</i> (<i>Pravarasena I /</i> <i>Tuṅgajina II</i>)	173	815	<i>Lalitapīda</i> <i>Samgrāmapīda II+</i> <i>Chippatayajapīda</i>
160	438	<i>Hiranya</i> (<i>b</i>) <i>Toramāṇa</i> <i>Mātṛgupta+</i>	174	844	<i>Ajītapīda+</i> <i>Anāṅgapīda+:</i> (<i>f</i>) <i>Samgrāmapīda II</i>
161	467	<i>Pravarasena II+</i> (<i>b</i>) <i>Mihirakula II</i>	175	873	<i>Utpalapīda+:</i> (<i>f</i>) <i>Ajītapīda</i> <i>Avantīvarman+</i>
162	496	<i>Yudhiṣṭhira II</i>	176	902	<i>Śaṅkaravarman+</i>
163	525	<i>Narendrāditya I</i> (<i>Lakṣmaṇa</i>) <i>Rañāditya I +</i> (<i>Tuṅgajina III</i>)	177	931	<i>Gopālavarmaṇ</i> <i>Cakravarmaṇ+</i> (<i>n</i>) purchased the throne, few similar ones followed
164	554	<i>Vikramāditya</i> (<i>c</i>) (<i>sil</i>) <i>Rājā Gaja</i>	178	960	<i>Yaśaskara Deva</i> <i>Kṣemagupta+:</i> (<i>w</i>) <i>Diddā</i>
165	583	<i>Balāditya</i> (<i>n</i>) looks to be a son, not a brother	179	989	<i>Abhimanyu II:</i> (<i>m</i>) <i>Diddā</i> <i>Samgrāmarāja+ (aunt) Diddā</i>
166	612	<i>Durlabhavardhana</i> (<i>Prajñānāditya</i>)	180	1018	<i>Ananta Deva</i>
167	641	<i>Durlabhaka</i> (<i>Pratāpāditya II</i>)	181	1047	<i>Kalaśa (Raṇāditya II)</i>
168	670	<i>Candrapīda+</i>	182	1076	<i>Utkarṣa & Harṣa</i>
169	699	<i>Tārāpīda+</i>	183	1105	<i>Uccala+</i> (<i>b</i>) <i>Sussala+</i>
170	728	<i>Muktapīda+</i> (<i>Lalitāditya</i>) ~725 CE	184	1134	<i>Jayasimha/Simhadeva 1128 CE</i> (<i>n</i>) <i>Kalhaṇa</i> finished RT in 1150 CE, in his 22 nd year

Table 2.50
Kings of Kashmir #Gen. 157-184

The only few mistakes that *Kalhaṇa* commits are these: allotting 60 years average reign to earlier kings, allotting 300 years to a single king (*Raṇāditya* I) and trying to factor in a “lost list of 35 kings”. Like all other scholars of his age, *Kalhaṇa* too was under the impression of the two *Kali-Yuga* theories (2448 BCE as per the Ujjain tradition of *Vṛddha Garga*, 3102 BCE as per Āryabhaṭṭa) both of which are factually wrong. Obviously, *Kalhaṇa* tried to fill in the non-existent imaginary void of 2275 years between 3102 BCE and 827 BCE, the imagined and actual time of *Mahābhārata* war. This becomes clear when you consider that the “lost list of 35 kings” amounts to 2100 years by his standard of 60 years, and adding in the extra 240 years assigned to *Raṇāditya* I (300-60), we get 2340 years, nearly the same time period as 2275 years of the imaginary void. Consequentially, only the individual reign times of kings closer to time of *Kalhaṇa* (Book 7/8) maybe taken at face value. Of the earlier kings, only the standard generation time of 29 years need be considered, neglecting the impossible 60 year reign periods assigned to them by *Kalhaṇa* in error.

Regardless of the actual time of *Mahābhārata* war, the date of *Gonanda* II will still be found to be in the same place in our calculating back the generations from *Meghavāhana* (380-409 CE) who was a contemporary of *Candra Gupta* II and the son-in-law of *Bala Varman* of *Kāmarupa* dynasty.

Even though *Kalhaṇa* states to have consulted 11 works of former scholars as well as the *Nīlamata Purāṇa* in composing the *Rājatarangiṇī*, it is still quite remarkable that he was able to so accurately compile the generations of kings of Kashmir spanning nearly 2000 years (827 BCE-1152 CE). With the accurate mapping of Kashmir kings now being known, we are able to establish few facts and also unravel some mysteries:

1. *Gonanda* I, the first king by *Rājatarangiṇī*, was a relative of *Jarāśamda* of *Magadha* and was killed by *Balarāma*, the elder brother of *Kṛṣṇa*, in a fight.

2. *Dāmodara I*, the son of *Gonanda I*, was also killed in a fight and *Kṛṣṇa* crowned *Yaśomati*, the wife of *Dāmodara I*, as the Kashmir queen. Her son *Gonanda II* was a minor at that time.
3. *Gonanda II* was a senior contemporary of the *Pāñḍava* king *Parīkṣit*, the grandson of *Arjuna* who was crowned by *Yudhiṣṭhīra* in the 18th year after the *Mahābhārata* war.
4. *Mihirakula I*, who slayed 300,000 Buddhists and constructed the Sun temple of Multan belonged to Gen.142 (85-56 BCE).
5. *Meghavāhana* was a contemporary of *Candra Gupta II* and was the son-in-law of *Bala Varman* of *Kāmarupa* dynasty, in whose 10th generation was born *Bhāskara Varman*, the feudatory and friend of *Harṣa Vardhana*.
6. The *Vikramāditya* of Ujjain, who sent his poet friend *Mātrgupta* to rule Kashmir at the death of *Hiranya*, was *Skanda Gupta* and not *Harṣa Vardhana* as *Kalhaṇa* mistakes him to be. *Mātrgupta* and *Kālidāsa* are two different persons; the *Setukāvya* in Prākṛt that was completed at the request of *Pravarasena II* was written by *Mātrgupta* and not *Kālidāsa*.
7. *Pravarasena II* and *Mihirakula II* were the sons of *Toramāna*, the brother of *Hiranya*. *Pravarasena II* reclaimed the Kashmir throne and also reinstated *Kumāra Gupta II*, the hitherto unknown son of *Vikramāditya* (*Skanda Gupta*), on the Ujjain throne.
8. *Mihirakula II* (467-496 CE), was captured by *Bālāditya* (*Harṣa Gupta*) of *Magadha* but released. He ran away to his brother *Pravarasena II* in Kashmir where he finally murdered him.
9. The *Gonanda Vikramāditya* was invaded by *Rājā Gaja* of Punjab (Sialkot) and ended up becoming his father-in-law and the maternal grandfather of *Śālivāhana*, the son of *Rājā Gaja* from his daughter.
10. *Śālivāhana* may have defeated *Vikramāditya* (*Harṣa Vardhana*) in defending his territories of Punjab and perhaps that of his maternal uncle *Balāditya* who ruled Kashmir.
11. *Durlabhavardhana* (*Prajñānāditya*) ruled Kashmir and had control of the Khyber Pass when Hiuen-Tsang was visiting Kashmir.

2.14 Early Kings of Nepal

The early history of Nepal is much muddled due to various eras being mixed up. What clears it and sets things straight is a set of four key dates of its kings, namely, that of:

1. *Māna Deva I* by the *Cāngu Nārāyaṇa* (Pashupatinath Temple, Nepal) Pillar inscription¹⁴¹ dated SS.386 (464 CE)
2. *Narendra Deva* (641-657 CE), the son of *Udaya Deva* and the grandson of *Śiva Deva I*, by the Chinese history of T'ang dynasty¹⁴²
3. *Jaya Deva II*, the son of *Śiva Deva II* and the grandson of *Narendra Deva*, of the AS.153 (731 CE). This Ins. is of the *Amśuvarman* era (SS.500, 578 CE) that was started by *Amśuvarman* in 607 CE (SS.529, AS.29), by simply dropping the 500 elapsed years of *Śaka* era. The writer of *Sumatitantra* mistakenly mentions the *Amśuvarman* era (AS) as *Mānadeva Saṃvat* that started in SS.498 (576 CE); there was no *Māna Deva* in Nepal about this time
4. *Rāghava Deva* who started the *Nepālī/Newari* era (879 CE)

The *Cāngu Nārāyaṇa* stone pillar inscription of king *Māna Deva I* of the year 386, also known as Bhagwanlal Ins. No. 1, is thought to be that of *Gupta* era by some and *Kṛta* era by others. Although the “*Jyeṣṭha* S01 day in *Rohiṇī Nakṣatra*” condition is also fulfilled by both the *Gupta* era year 386 (705 CE, Apr 28) and the *Kṛta* era year 386 (293 CE, May 04), this alone cannot be the basis of deciding its time. It also has to fit well in relative chronology without any

¹⁴¹ संवत् ३८६ ज्येष्ठ मासे शुक्ल पक्षे प्रतिपदि

रोहिणी नक्षत्र युक्ते चन्द्रमसी मुहूर्ते प्रशस्ते अभिजिति

- “The Inscription of King Mānadeva at Changu Narayan”, Theodore Riccardi, *Journal of the American Oriental Society* 109.4 (1989): pp.611–620

¹⁴² The Chinese history of T'ang dynasty records the two visits of imperial ambassadors to Nepal, in 643 CE and in 657 CE, during the reign of *Narendra Deva* (*Na-Ling-ti-po*).

conflicts. So, when we fix its time to be the *Śaka* era year 386 (464 CE), not only the “*Jyeṣṭha* S01 day in *Rohiṇī Nakṣatra*” condition is fulfilled but it also fits in neatly with the known chronology, revealing its accurate date as **Apr 23, 464 CE**.

No	Month	New Moon Day (Prev.)	Full Moon Day
4	<i>Vaisākha</i>	24.03.464	08.04.464
5	<i>Jyeṣṭha</i>	23.04.464 (NMP: 22.04.464 18:19 IST)	08.05.464
6	<i>Āṣāḍha (Ādhika)</i>	22.05.464	06.06.464

Table 2.51
Vedic Calendar of *Śaka* era year 386 (464 CE)

Gen	Year	Nepal	Gen	Year	Nepal
145	03	<i>Jaya Deva I</i> (+11 more kings)	166	612	<i>Udaya Deva (b) Dhruva Deva+</i> (<i>Māna Deva II</i>)
157	351	<i>Vṛṣa Deva</i>	167	641	<i>Narendra Deva+</i> (f) <i>Udaya Deva</i> (ec) <i>Yogi Gorakhanātha</i>
158	380	<i>Śaṅkara Deva I</i>	168	670	<i>Śiva Deva II</i>
159	409	<i>Dharma Deva</i>	169	699	<i>Jaya Deva II (m) Vatsadevī</i> (Ins. AS.153, 731 CE)
160	438	<i>Māna Deva I</i> (Ins. SS.386)	170	728	<i>Vijaya Deva</i> (b?) <i>Śiva Deva III+</i> (AS.174) (b?) <i>Māna Deva III+</i> (AS.180)
161	467	<i>Mahī Deva</i> (n) ruled very shortly <i>Vasanta Deva+</i>	171	757	<i>Gaṇa Deva II?</i> <i>Śaṅkara Deva II+</i> (lc) <i>Ādi Śaṅkara</i>
162	496	<i>Vāmana Deva</i>	172	786	X (<i>Vardhmāna Deva?</i>)
163	525	<i>Rāma Deva</i> (Ins. SS.469)	173	815	<i>Bali Rāja</i> (AS.250: 828 CE) <i>Bala Deva+</i> (AS.271: 849 CE)
164	554	<i>Gaṇa Deva I</i> (SS.479)	174	844	<i>Māna Deva IV</i> (AS.301)
165	583	<i>Śiva Deva I+</i> (Ins. SS.512-526) <i>Amśuvarman+</i>	175	873	<i>Rāghava Deva</i> (n) started the Newari Era: 879 CE

Table 2.52
Early Kings of Nepal #Gen. 145-175

Amśuvarman ruled as a *Mahāsāmānta* (Great Military Chief) under *Śiva Deva I* and was a feudatory of *Harṣa Vardhana*. He has mentioned *Udaya Deva* as the crown prince in his inscriptions. On the death of *Śiva Deva I* in 607 CE (SS.529, AS.29), he declared himself as *Mahārājādhirāja* of Nepal and ruled upto 629 CE (SS.545, AS.45). During this time, his son *Jiṣṇu Gupta* (the junior contemporary of *Harṣa Vardhana* and the father of *Brahma Gupta*, the astronomer) settling down in Ujjain, as *Kālidāsa* also mentions him to be one of the nine gems of *Harṣa*. *Jiṣṇu* briefly succeeded his father in 629 CE but it seems that *Dhruva Deva*, another son of *Śiva Deva I*, soon defeated *Jiṣṇu Gupta* and also deposed *Udaya Deva*, his own elder brother, and ruled up to 633 CE (SS.555, AS.55). Then his son *Bhimārjuna Deva* succeeded him and ruled up to 641 CE. *Bhimārjuna Deva* was deposed by *Narendra Deva*, the son of *Udaya Deva* and grandson of *Śiva Deva I*, with the help of Tibet king on his becoming a feudatory of the Tibet king. As the last inscription of *Bhimārjuna Deva* is that of 643 CE (SS.565, AS.65), it's possible he retained partial control of some territories from 641-643 CE before being ousted completely. The later kings of Nepal are well documented in *Newari/Nepālī* era and needn't be discussed here.

2.15 *Ādi Śaṅkara*

The time of *Ādi Śaṅkara*, or simply the *Śaṅkarācārya*, is another supposed mystery of Indian history arising from a lack of proper understanding of history. *Ādi Śaṅkara* established 4 *Maṭha* (chief centers of learning) in four cardinal directions of India that continue to this day, apart from the (disputed) *Kāmakoti Maṭha* that is thought to be established in his last year. There is an incorrect belief in some of these *Maṭha* that *Ādi Śaṅkara* was born in the year 2593 of *Yudhiṣṭhira (Kali)* era and that his time was thus 508 BCE (-3101+2593). This belief is not sustainable because, as the *Kali* era of 3102 BCE was started by *Āryabhaṭṭa* only in 499 CE, only the *Kali* years greater than 3600 can be referenced against it, not *Kali.2593*.

For the same reason, it cannot be referenced from 2448 BCE as well, the *Kali* era invented by *Vṛddha Garga* in 252 CE, as *Ādi Śaṅkara* would then be placed in 146 CE (-2447+2593), prior to *Vṛddha Garga*. Existence of *Śaṅkara* in 1-4 cen. or before is also an impossibility on account of relative chronology. On the same account, the *Śaṅkarācārya* lists of *Kāmakoti/ Dvārakā/ Puri Maṭha* stand ruled out as inaccurate because, by their count of 66-77 *Śaṅkarācāryā* with an average reign period of 25 years (as indicated by the *Śṛṅgerī* list), *Ādi Śaṅkara* would exist in 1-4 century, 1650-1925 years before the present time.

As *Ādi Śaṅkara* himself quotes the Buddhist scholar *Dīghanāga*¹⁴³ in his *Brahma Sūtra Bhāṣya* (2.28) and the Buddhist scholar *Dharmakīrti*¹⁴⁴ (of late 6th cen.) in his *Upadeśa Sāhasrī* (18.142), while *Kumārila Bhaṭṭa*, his contemporary two generations senior, quotes both *Bhartṛhari* and *Kālidāsa*¹⁴⁵, the co-aged contemporaries of *Harṣa Vardhana* (577-647 CE), both *Śaṅkara* and *Kumārila* existed only later of them. Even the Buddhist scholars of 7th century, *Huien-Tsang* (629-641 CE) and *I-Tsing* (670-691 CE), don't seem to know any *Ādi Śaṅkara*, the greatest enemy of Buddhist philosophy of Nihilism. So, clearly, *Śaṅkara* and *Kumārila* existed only later of the time that started with 8th century which becomes the lower time limit of *Ādi Śaṅkara*. Similarly, the upper time limit of *Ādi Śaṅkara* can be fixed by the time of the Jain scholar *Vidyānanda* (a.k.a. *Patrakesarī*, ~775-840 CE) who, in his *Aṣṭa Sāhasrī*¹⁴⁶, quoted a verse from the *Bṛhadāraṇyaka Upaniṣad Vārtikā* of *Sureśvara* (*Mañdana Miśra*), the chief disciple of *Ādi Śaṅkara*. This *Vidyānanda*

¹⁴³ From *Alambanapariksha*: यदमर्ज्जेरुपम् तत् बहिर्दद्वभासते

¹⁴⁴ From *Pramanaviniśchaya*:

अभिन्नोऽपि हि बुद्ध्यात्मा विपर्यासितदर्शनैः । ग्राह्यग्राहकसंवित्तिभेदवानिव लक्ष्यते ।

¹⁴⁵ From *Abhijnanashakuntalam*:

सतां हि सन्देहपदेषु वस्तुषु प्रमाणमन्तःकरणं प्रवृत्तयः ।

¹⁴⁶ A commentary of *Sāmāntabhadra's Aptamimamsa / Devagamastotra*:

“यदुक्तं बृहदारण्यकवार्तिके –

आत्मापि सदिदं ब्रह्म मोह्यत्पारोक्ष्यदूषितं । ब्रह्मापि स तथैवात्मा स द्वितीयतयेक्ष्यते । “

has been mentioned by Jain scholar *Jinasena*, who composed the (Jain) *Harivamśa Purāṇa* (SS.705, 783 CE) and the *Ādi Purāṇa* (SS.760, 838 CE), in his *Ādi Purāṇa*. So, clearly, *Sureśvara* had completed his *Bṛhadāraṇyaka Upaniṣad Vārtikā* (exegesis of Śaṅkara's commentary on the *Brahma Sūtrā*) latest by about 820-830 CE. Based on the dates of *Vidyānanda* and *Jinasena*, the Jain literature also accepts 750-838 CE as probable time of Śaṅkara. Combining this information with the fact that the birth year of *Ādi Śaṅkara*, as per the records of Śringerī *Maṭha*, was the (expired) 14th year of a *Vikrama* era, we are able to pinpoint the real life period of *Ādi Śaṅkara* as 747-779 CE. For the reasons stated already, the *Vikrama* era of Śringerī records cannot be that of *Harṣa Vardhana Vikramāditya* (598 CE). As Śringerī (near modern day Bengaluru) was a territory of Chalukyas in this timeframe, the only *Vikrama* era possible here is that of *Vikramāditya II* of the Badami Chalukya dynasty, who is known to have ascended in 733 CE, with which year started his *Vikrama* era. This quite accurately gives us the life period of *Ādi Śaṅkara* as 747-779 CE which is in perfect conformity with the most known facts about *Ādi Śaṅkara* and his *Maṭha*.

There is also a popular time period of *Ādi Śaṅkara* (788-820 CE), which is based on a reference of unknown origin and which states that *Ādi Śaṅkara* was born in *Kali.3889* (788 CE) and died in *Kali.3921* (820 CE):

<p>निधिनागेभवहन्त्याब्दे विभवे शङ्करोदयः कल्याब्दे चन्द्रनेत्राङ्कवहन्त्याब्दे प्रविशद् गुहाम् वैसाखे पूर्णिमायां तु शङ्करः शिव आत्मगतम्</p>
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| In the 3889 year, a *Vibhava* year, Śaṅkara was born, In *Kali* year 3921, (he) entered the cave (of his heart), On *Vaisākha* Full Moon day, Śaṅkara rested in his true own being. |

Note:

(*Nidhi* = 9 Wealths, *Nāga* = 8 Serpents, *Ibha* = 8, *Vahni* = 3 Chief Fires; *Candra* = 1 Moon, *Netra* = 2 Eyes, *Aṅka* = 9)

It can be seen that while the period of 747-779 CE is in complete agreement with the cyclic years of the known establishment dates of the aforesaid 5 *Maṭha*, the period of 788-820 CE doesn't confirm to any of them:

771 CE: *Dvārakā Maṭha* - *Māgha* S07 of *Sādhāraṇa* year (44th)

776 CE: *Jyotiḥ Maṭha* - *Pauṣa* S05 of *Rākṣasa* year (49th)

777 CE: *Purī Govardhana Maṭha* - *Vaisākha* S09 of *Nala* year (50th)

778 CE: *Śrīngerī Maṭha* - *Pauṣa Pūrṇimā* of *Pīṅgala* year (51st)

780 CE: *Kāmakoṭi Maṭha*, *Vaisākha Pūrṇimā* of *Siddhārthi* year (53rd)

1	<i>Prabhava</i> (728 CE)	21	<i>Sarvajit</i>	41	<i>Plavañga</i>
2	<i>Vibhava</i>	22	<i>Sarvadhāri</i>	42	<i>Kīlaka</i>
3	<i>Śukla</i>	23	<i>Virodhi</i>	43	<i>Saumya</i>
4	<i>Pramoda</i>	24	<i>Vikṛti</i>	44	<i>Sādhāraṇa</i> (771 CE)
5	<i>Prajāpati</i>	25	<i>Khara</i>	45	<i>Virodhakṛta</i>
6	<i>Āngirasa</i>	26	<i>Nandana</i>	46	<i>Paridhāvi</i>
7	<i>Śrimukha</i>	27	<i>Vijaya</i>	47	<i>Pramādī</i>
8	<i>Bhāva</i>	28	<i>Jaya</i>	48	<i>Ānanda</i>
9	<i>Yuva</i>	29	<i>Manmatha</i>	49	<i>Rākṣasa</i> (776 CE)
10	<i>Dhāta</i>	30	<i>Durmukhi</i>	50	<i>Nala</i> (777 CE)
11	<i>Īśvara</i>	31	<i>Hevalambī</i>	51	<i>Pīṅgala</i> (778 CE)
12	<i>Bahudhānya</i>	32	<i>Vilambī</i>	52	<i>Kālayukta</i> [779 CE]
13	<i>Paramārthī</i>	33	<i>Vikārī</i>	53	<i>Siddhārthi</i> (780 CE)
14	<i>Vikrama</i>	34	<i>Śārvari</i>	54	<i>Raudra</i>
15	<i>Vṛṣa</i>	35	<i>Plava</i>	55	<i>Durmati</i>
16	<i>Citrabhānu</i>	36	<i>Śubhākṛta</i>	56	<i>Duṃdubhi</i>
17	<i>Svabhānu</i>	37	<i>Śobhākṛta</i>	57	<i>Rudhirodgāri</i>
18	<i>Tāraṇa</i>	38	<i>Kroḍhī</i>	58	<i>Raktāksī</i>
19	<i>Pārthiva</i>	39	<i>Vishvāvasu</i>	59	<i>Kroḍhana</i>
20	<i>Vyaya</i> [747 CE]	40	<i>Parābhava</i>	60	<i>Kṣaya</i> (787 CE)

Table 2.53

The 60-Year Jovian Cycle (728 CE = *Prabhava* year)

The aforesaid years of establishment of *Maṭha* are the fixed named years of the 60-year Jovian cycle popularized by *Varāhamihira*, from *Prabhava* (1st year) to *Akṣaya* (60th year). It's known that the first four *Maṭha* were established by *Ādi Śaṅkara* in his last few years. Now, *Kāmakoti Maṭha* maintains that it was established in the last year of *Ādi Śaṅkara* but as its establishment year was a *Siddhārthi* year, this doesn't seem to be true. This is the reason why its establishment is disputed in the first place. It may be said with confidence that it was established only in the year after the passing away of *Ādi Śaṅkara*. This is discussed ahead. Also, it can be noticed that the birth year of *Śaṅkara* (747 CE) was a *Vyaya* year and the year of his death (779 CE) was a *Kālayukta* year.

Direction	<i>Maṭha</i>	Year
West	<i>Dvārakā Maṭha</i> ~(Dec 28, 770 CE)* Disciple: <i>Hastāmalakācārya</i> Veda: <i>Sāmaveda</i> <i>Tattvamasi</i> (That thou are)	771 CE
North	<i>Jyotir Maṭha</i> ~(Nov 20, 776 CE)* Disciple: <i>Toṭakācārya</i> Veda: <i>Atharvaveda</i> <i>Ayamātmā Brahma</i> (This Atman is Brahman)	776 CE
East	<i>Puri Govardhana Maṭha</i> ~(Mar 22, 777 CE)* Disciple: <i>Padmapāda</i> Veda: <i>Rgveda</i> <i>Prajñānam Brahma</i> (Consciousness is Brahman)	777 CE
South (West)	<i>Śṛṅgerī Maṭha</i> ~(Nov 09, 778 CE)* Disciple: <i>Sureśvarācārya</i> Veda: <i>Yajurveda</i> <i>Aham Brahmasmi</i> (I am Brahman)	778 CE
South (East)	<i>Kāmakoti Maṭha</i> ~(Mar 24, 780 CE)* Started the year after passing away of <i>Ādi Śaṅkara</i> .	780 CE

* Counting from New Moon Day as the first Day in the Vedic Calendar

Table 2.54
Five *Maṭha* of *Ādi Śaṅkara* Tradition

As regards the dispute about *Kāmakoṭī Maṭha*, it seems that Śaṅkara visited *Kāmakoṭī* in his last year in 779 CE and took for disciple a minor by the name of *Sarvajñātmana* before proceeding to Kedarnath to shed his body. Here, *Kāmakoṭī Maṭha* incorrectly maintains that Śaṅkara took his *Samādhi* at *Kāmakoṭī* itself. The popular belief, as per his biographies, is that Śaṅkara took his *Samādhi* at Kedarnath in the Himalayas. It seems that Śaṅkara left some instructions to *Sureśvarācārya* in regards to *Sarvajñātmana*. *Kāmakoṭī Maṭha* also maintains that *Sureśvarācārya* succeeded Śaṅkara there. *Sureśvarācārya*, already appointed at Śṛṅgerī *Maṭha*, must have come to *Kāmakoṭī* for some time to establish a *Maṭha* and to take care of *Sarvajñātmana*, the minor disciple of Śaṅkara, until he came of age. So, it seems that it was *Sureśvarācārya* who started the *Kāmakoṭī Maṭha* at the instructions left behind by Śaṅkara. Whatever be the actual sequence of these events, *Kāmakoṭī Maṭha* seems to be a genuine *Maṭha* of the *Ādi Śaṅkara* tradition and is as much important as other four *Maṭha*.

Ādi Śaṅkara must have visited Kashmir in 776 CE, the *Rāksasa* year in which *Jyotir Maṭha* was established, during which time Vajrāditya II, the despotic son of Lalitāditya, ruled in Kashmir.

From his biographies, it is known that *Ādi Śaṅkara* was destined to live only for 8 years but was blessed with another 8 years of life by some great sages who came visiting him at his house and who became very happy noticing the exceptional mastery of all Vedic knowledge by a mere 7 year old. About this time, *Rājaśekhara*, a king of Kerala, hearing of the fame of Śaṅkara, also came and showed Śaṅkara three dramas that he had composed. Shortly thereafter Śaṅkara took to monastic life after getting permission from his mother, and located his guru *Govindapāda* with whom he stayed for about a year. *Govindapāda* then instructed Śaṅkara to go to *Kāśī* (*Vārāṇasī*) and write commentaries on the *Upaniṣadā* and the *Brahma Sūtrā* of *Vyāsa*. By the age of 12, Śaṅkara had completed his most works and had accepted some disciples. One day, after he had turned 16, as he was teaching his commentary on the

Brahma Sūtrā to his disciples, *Vyāsa* came in disguise to test Śaṅkara's understanding and knowledge of the *Brahma Sūtrā*. Debating with Ādi Śaṅkara and noticing his extreme erudition and all-round learning, he grew extremely glad of him. When Ādi Śaṅkara told him that his 16 years of life were just over and that he wished to shed his body that very moment in the auspicious presence of *Vyāsa*, *Vyāsa* restrained him, gave him a boon of another 16 years of life and directed Ādi Śaṅkara to firmly establish the true philosophy of the *Vedā* by undergoing a spiritual *Digvijaya* ("conquest of the quarters") by defeating the top scholars of the numerous wrong philosophies that had cropped up and that were based on selective and wrong interpretation of the *Vedā*. This must have been the year 763 CE (747+16), when Ādi Śaṅkara set out to debate with an old *Kumārila Bhaṭṭa*, the champion of the *Pūrvā Mīmāṃsā* philosophy, who was on his deathbed in *Prayāga* (Allahabad). *Kumārila Bhaṭṭa*, already having heard of Śaṅkara's fame, felt greatly honored at the sight of Śaṅkara. He glanced through Śaṅkara's work and abandoned his own doctrine and advised him to seek out and defeat his best disciple *Maṇḍana Miśra*. Then *Kumārila Bhaṭṭa*, already on his deathbed, was initiated by Śaṅkara into the knowledge of *Brahmā* and attained liberation. Thereafter Śaṅkara located *Maṇḍana Miśra* who is said to be about 45 years old this time. So, *Maṇḍana Miśra* was likely born in 718 CE (763-45) and *Kumārila Bhaṭṭa*, a generation senior to *Maṇḍana Miśra*, was likely born in 689 CE (718-29). Thus *Kumārila Bhaṭṭa* would be at least 74 years old in 763 CE and 2 generations (58 years) senior to Ādi Śaṅkara when a 16 year old Śaṅkara approached him for debate. This is perfectly plausible.

With *Kumārila Bhaṭṭa* being born in 689 CE and *Bhavabhūti*, the poet at the court of Yaśovarman of Kannauj existing in Gen.170 (728-757 CE), it becomes clear that *Bhavabhūti* could not have been a pupil of *Kumārila Bhaṭṭa*. It's only through his mistaken identification with an *Umbeka* that it is thought to be so. It may be that *Bhavabhūti*, famous for grand Vedic sacrifices as laid out in

the *Pūrva Mīmāṃsā* tradition, was a pupil of the father of *Kumārila Bhaṭṭa*. Placing Ādi Śaṅkara in 788 CE (his popular date), by shifting him down 41 years from 747 CE, would actually make *Kumārila Bhaṭṭa* a generation junior to *Bhavabhūti* which would be wrong.

Ādi Śaṅkara defeated *Maṇḍana Miśra* in a long drawn debate. When *Maṇḍana Miśra* had conceded defeat, *Ubhayā Bhāratī*, the wife of *Maṇḍana Miśra*, told Śaṅkara that his victory wouldn't be complete until she, a half part of her husband as per *Vedā*, was also defeated. This started a long debate with *Ubhayā Bhāratī* as well who is said to be an incarnation of *Sarasvatī*. Noticing that Śaṅkara could not be defeated, she asked him to debate the sex science as he was an all-knowing sage. At this, Śaṅkara, who was a celibate since his birth and who had nothing to do with sexual relations, sought a 3 months recess and told her that she would be defeated at its end. Travelling with his disciples, he soon noticed a dead king who was about to be cremated. Śaṅkara took this opportunity to learn the sex science and, through *Yoga*, entered into the lifeless body of this dead king by leaving his original body in the care of his disciples. This king is said to be one *Amaru* or *Amaruka* who had a couple of wives. For a while, Śaṅkara indulged into sexual love with these women, fully learnt the various aspects of lovemaking and also produced a text on the love science known as *Amaru Śatakam* before returning to his own body. When he returned to complete the debate, *Ubhayā Bhāratī* conceded defeat beforehand and left her body. *Maṇḍana Miśra* became his disciple and took to monastic life under the name of *Sureśvarācārya*.

Subsequently, Śaṅkara defeated many famous scholars amongst whom were *Nilakanṭha*, of the *Shaivism* cult at Gokarana, and *Bhaṭṭa Bhāskara*, of the *Bhedābheda* doctrine at Ujjain; *Bāṇa*, *Mayūra* and *Daṇḍina* of Ujjain also became his followers. He also defeated the Jains of *Śurasena* (Mathura) and *Mādhyamika* (Jaipur) and a *Prabhākara* of *Mīmāṃsā* School, *Udayana* of the *Nyāya* School, Śrī Harṣa (the *Khaṇḍanākāra*, a dialectician) and many Buddhists. He was a terror to the Buddhists, who were nihilists in their

philosophy. *Śaṅkara* pulled the curtain on Buddhism that had found royal favor with *Maurya* kings in early days and *Harṣa Vardhana* in later days. Then a *Navagupta*, a Śākta (worshipper of Goddess, the feminine principle) of *Kāmarupa* (Assam), became his disciple with a hideous intent of killing him by black magic. His black magic rites caused a fistula in *Śaṅkara* which caused much pain for many days but sooner, the cause of unending disease was made known to *Śaṅkara* by the *Aśvin* gods. When his disciples came to know of it, they were furious and performed rites to transfer back the black magic to *Navagupta*, who died of it some days later. After his recovery, *Śaṅkara* went to the *Śarada* shrine of Kashmir (now in Pakistan), a place of worship of *Sarasvatī* (the Goddess of learning), wherein was kept a throne reserved for scholars who knew all philosophies. There were four doors in this shrine for the scholars from the four cardinal directions; *Śaṅkara* became the first person to have opened the south door and to have mounted the throne of *Śarada* shrine. When he was on this tour, he also fixed his chief disciples in four *Māṭha* which were to continue imparting the true knowledge of *Vedā*. After this, *Śaṅkara* took his *Samādhi* either in Kedarnath or in *Kāmakoti Māṭha*.

Ādi *Śaṅkara* analyzed the *Vedā* in their entirety and revealed their true meaning. He said that the *Vedā* have two parts, while the first part advocates the right worldly actions (*Pūrva Mīmāṃsā*, for exaltation in the realm of *Māya* and for preparedness towards finality), the second part reveals the true knowledge that negates all the worldly phenomena (*Uttara Mīmāṃsā*, *Upaniṣadā*, *Vedānta*, for establishment of a prepared person into the supreme state). He pronounced that the entire universe, including the personal gods such as *Viṣṇu/Śiva/Brahmā* and all the sentient beings, are a mere reflection of one indivisible Supreme Being (Awareness) in the mirror of its power known as *Māya*. He said that all differentiations exist only in the “perceived” realm of *Māya* and not in actuality. When any being realizes his true identity as the one indivisible Supreme Being, that is the substratum of entire manifest creation, all his earlier perceptions, of a different identity,

dissolve away. But while the differences are still perceivable to one, the right worldly actions still need to be performed as a duty. To be established in the Supreme is the highest goal of Human life, unattainable to even the gods. For the one who is established in the Supreme, there is no further duty. Such exalted knowledge, that helps all beings know their true identity, has been the true religion of India (*Bhāratavarṣa*) since at least 3391 BCE, now compare this with the most other dogmatic religions that are based only on a cult following of a person or two.

Let's now take a look at the *Śringerī Maṭha* list of *Śaṅkarācāryā* that is available at its website (Sringeri.net/jagadgurus):

No.	Śringerī Śaṅkarācārya	Period (CE)	Years	Avg.
1	Śaṅkara Bhagavatpāda (Ādi Śaṅkara)	820		56
2	Sureśvarācārya	820 – 834	14	
3	Nityabodhaghāna	834-848	14	
4	Jñānaghāna	848 – 910	62	
5	Jñānottama	910 – 954	44	
6	Jñānagiri	954 – 1038	84	
7	Siṃhagiri	1038 – 1098	60	
8	Īśvara Tīrtha	1098 – 1146	48	
9	Nṛsimha Tīrtha	1146 – 1229	83	
10	Vidyā Tīrtha	1229 – 1333	104	
11	Bhāratī Tīrtha	1333 – 1380	47	
12	Vidyāraṇya	1380 – 1386	6	25.37
13	Candraśekhara Bhāratī I	1386 – 1389	3	
14	Nṛsimha Bhāratī I	1389 – 1408	19	
:	:	:	:	
:	:	:	:	
34	Candraśekhara Bhāratī III	1912 – 1954	42	
35	Abhinava Vidyātīrtha	1954 – 1989	35	
36	Bhāratī Tīrtha	1989 – Now		

Table 2.55
Śringerī List of Śringerī Śaṅkarācāryā

It can be noticed from this list that, from *Vidyāranya* at No. 12 to *Bhāratī Tīrtha* at No. 36, the average reign period is 25.37 year. But before *Vidyāranya*, the average reign period jumps to an impossible figure of 56 years, with some unbelievable reign durations such as 84/60/83/104 years. This is clearly in great error as it is obvious that the reign periods preceding *Vidyāranya* have been pumped up only to make *Ādi Śaṅkara*'s last date align with the year 820 CE. So, these reign periods before *Vidyāranya* cannot be trusted at all. Now, the time of *Vidyāranya*, who composed the *Pañcadaśī* and was the elder brother of Vedic commentator *Sāyaṇa*, is the most important date in this list as his time as *Śaṅkarācārya* is quite accurately known to be 1375-1386 CE by a few inscriptions¹⁴⁷ about him and about the founding date¹⁴⁸ of *Vijayanagar* empire that was established with his blessings. Thus ignoring the specified reign periods before *Vidyāranya*, and applying the same 25.37 year average before *Vidyāranya* as after him, the time of start of reign of *Sureśvarācārya* at No. 2, is indicated as ~254 years (25.37*10) before 1380 CE which comes to 1126 CE. This date would be in conformity with the *Vikrama* era of 1076 CE started by *Vikramāditya VI*, of the Western Chalukya dynasty, if the period of *Ādi Śaṅkara* could be taken as 1090-1122 CE. But this period is clearly an impossibility considering the contemporaries of *Ādi Śaṅkara* as well as the fact that *Śaṅkara* was much anterior to *Rāmānujācarya* (1017-1137 CE), the Bhakti movement founder and a great critic of the *Advaita Vedānta* tradition of *Ādi Śaṅkara*. So, the only thing wrong with this list is that it is missing about 14 names (1126-779/25.37) between *Sureśvarācārya* at No. 2 and *Nityabodhaghana* at No. 3 and also that *Abhinava Śaṅkara* was

¹⁴⁷ Kudupa Ins. of 1375 CE: *Madras Epigraphical Rep.* (1929), No. 460

Kadita Ins. of Śringerī Matt of 1380 CE: *Mys. Arch. Rep.* (1916), P.57

Śringerī Copper Plate Ins. of 1386 CE: *Mys. Arch. Rep.* (1916), p. 57-58

¹⁴⁸ Vaisakha S07 of Śaka 1258, *Maghā Nakṣatra* (Apr 20, 1336 CE):

दिक्षारद्वयसंख्याके (1258) शकाब्दे सुसमाहिते ।

ध्रात्वब्दे सितसप्तम्यां वैशाखे मासि भास्करे ।

सुलग्ने शुभनक्षत्रे मखाख्ये च विशेषतः ॥ - *Mysore Arch. Rep.* (1932), Pg. 103-7

mistaken for *Ādi Śaṅkara* by *Vidyāranya*. It should also be known that the *Śaṅkara* mentioned by *Bhojadeva*, the *Paramāra Bhoja* of Ujjain (Gen.180, 1018-1047 CE), in his Yogic text *Rājamārtanda*, is the *Ādi Śaṅkara* himself. Some say that this *Śaṅkara* of *Rājamārtanda* was a poet but what has a simple poet got to do with a Yogic text?

So, it becomes established fairly well that *Ādi Śaṅkara* was born in 747 CE, exactly 100 years after the death of *Harṣa Vardhana* (*Vikramāditya*) in 647 CE, in the (expired) 14th year of *Vikramāditya* II of the Badami Chalukya dynasty who ascended in 733 CE. He took his *Samādhi* in 779 CE after having lived for 32 years.

2.16 After-thought

The time of all major milestones of Indian history, such as *Svayambhuva Manu*, *Vaivasvat Manu*, *Rāma*, *Kṛṣṇa*, *Buddha*, *Candra Gupta* II (*Kalki*), *Skanda Gupta* (*Vikramāditya* I), *Śālivāhana*, *Harṣa Vardhana* (*Vikramāditya* II) and *Bhoja Deva*, as also *Vṛddha Garga*, *Āryabhaṭṭa*, *Varāhamihira*, *Kālidāsa* and *Ādi Śaṅkara* has now been established clearly. It's quite a shame that while the most ancient history of India has been ignored as plain mythology, the history textbooks penned by some half-witted Marxist historians, who only know to glorify the oppressive Muslim rulers, are allowed to continue in schools & colleges by the Govt. of India. This is due to utter indifference of many politically-eminent Hindus such as *Mahatma Gandhi* to their own history, and the 'legacy' that they left behind. In the introduction of his commentary (*Anāsaktiyoga*) on the *Bhagavad Gītā*, MG writes thus:

"Generally Mahābhārata is taken to be a historical work. But in my opinion, it is not so. I cannot say that Rāmāyaṇa and Mahābhārata are historical works. They are simply religious works. If you are still inclined to treat them as historical works, then I should say that they are nothing but the history of the Self (Atma). They do not contain what happened thousands of years ago. On the contrary, they are the reflections of what is happening today in every soul!"

It is not difficult to notice that such utterly unintelligent views of *Mahatma Gandhi* and other like-minded Indians find their origin in the western interpretation of Indian history. Most of the earlier western Indologists, even those who knew a little *Samskr̥t*, have stated that the Indians grossly neglected writing history and that their claimed history is pure mythology. M. Winternitz, in his *History of Indian Literature* writes, "History is one weak spot in Indian literature. It is, in fact, non-existent. The total lack of historical sense is so characteristic that the whole course of Samskr̥t literature is darkened by the defect". Max Muller, who was but an agent of the British Empire, writes in his *History of Ancient Samskr̥t Literature*: "No wonder that a nation like India cared so little for history". Major Wilford, another Western scholar, notes: "With regard to history, the Hindus have done really nothing but romances from which some truth may occasionally be extracted". Since *Samskr̥t*, the original language of most Indian texts, is quite tough to learn and master, most of these western Indologists, who took upon themselves the onerous task of writing about the Indian history proceeded to interpret the ancient Indian texts without first caring to learn *Samskr̥t*. Then, subsequently, out of frustration borne out of high labor of *Samskr̥t*, they discredited the entire Indian history as fictitious and mythological. But these western Indologists, due to their prejudiced minds, couldn't anticipate that the very roots of the entire world lay in the Vedic Indian civilization. Some of them, who may have learnt of this great truth, still hid the facts by locating the origin of the Āryā (followers of *Sanātana Dharma*) outside their original homeland of India to some vague place in central Asia. After all, their prime objective was to implement the agenda of establishment of supremacy of the Christian culture over all other cultures, by hook or by crook.

In 2017, the 'legacy' of despair and self-pity left behind by the likes of Gandhi and Nehru is largely over. An able prime-minister Narendra Modi now runs India. It's about time that India recognize its true history and move from strength to strength, for weakness always leads to further weakness, never to strength.

3. Timeline of Western History

Now we take up for discussion the history of western world that includes the Hebrews of Bible, the Mesopotamians and the Egyptians. Listing the generations of Indian history is a much easier task in comparison to listing them for the western history because while the Indian generations were largely patriarchal, the western generations are full of numerous usurpers. Even the wars between Indian kings were fought largely as a duty of the *Kṣatriyā*, as per the Vedic injunctions, without disturbing the common folk. The winner levied some tribute on the losing side and that was about it. There were rules formulated to engage in warfare properly, as also stated to be so for the *Mahābhārata* war. Whereas in the western world, the wars were largely fought savagely and the winner often indulged in loot, plunder, arson, destruction, killings of common folk and rapes of the womenfolk. Within a generation, there were sometimes as much as 4-5 usurpers. As the list of Assyrian kings overcomes these difficulties presented by the rather quick successions between various usurpers by clearly stating the relationship between successors, it becomes the key anchor for entire ancient western history.

3.1 Hebrews of Bible

But, as the western world is mostly Christian, it would do well to first examine the Biblical genealogy of Hebrews while uncovering the timeline of its history. The Genesis of Bible lists 10 generations from Adam, its first man, to Noah, who escaped a deluge, and states of these 10 generations to cover thousands of years. It would be really naive to believe that these ten generations actually lived for that many years¹⁴⁹. So, the ‘mathematical’ statements of

¹⁴⁹ The physical body is a natural machine made up by food and, undergoing normal wear and tear, stops functioning by the end of its normal lifespan. Even though a normal human lifespan is only of 60-100 years, there can be a few and rare exceptions to it, like in the case of Yogis

the Bible such as [*"Shem was born to Noah when Noah was 500 years old"*, *"Adam died at an age of 930 years"*] or such as the one that says that there were 480 years between the beginning of the Exodus and the start of construction of Solomon's temple are completely erroneous and can be ignored right at the outset.

From the deciphered cuneiform tablets available from the extensive clay tablets library of Ashur Banipal and as also dug up from around Eridu (modern-day Abu Shahrein, Iraq), the oldest of Sumerian cities, we now know the ancient Sumerian texts such as the Eridu Genesis, the Epic of Gilgamesh and the list of Sumerian kings. By going through these texts that precede the Biblical texts by thousands of years, any half-intelligent man can tell that the Genesis of Bible is nothing but a rehash of these Sumerian accounts. So, Adam of Bible seems to be fashioned after Alulim, the first Mesopotamian king (at Eridu) who descended from the heavens (the mountains), just as Noah seems be fashioned after Ziusudra/Utnapishtim, during whose time a deluge was caused by the waters of Euphrates River. Even from after Noah, up to Abraham, Bible gives 10 generations that span hundreds of years.

An examination of the Bible genealogy, as given in the Gospels of Matthew and Luke, makes it quite clear that the first 10 names from Adam to Noah are taken from Sumerian texts and simply prefixed to a possibly-real genealogy from Shem up to Abraham. While the Gospel of Matthew starts its genealogical list at Abraham, the Gospel of Luke starts it at Adam. There is no source to verify the generations from Shem to Abraham but the Biblical genealogy from Abraham to Jesus checks out well historically. It seems that the Biblical genealogy was originally maintained in 3 separate parts: Abraham to David, David to Jeconiah and Jeconiah to Jesus. All the gospels, including that of Matthew and Luke, must have derived from this original source of which Matthew

practicing the bodily science of *Hatha-Yoga*, but certainly not in the case of normal people and kings.

seems to have got only the first two parts and Luke only the first and third parts. Of these, the middle part of Luke and the third part of Matthew seem to be incorrect.

Gen	Year	Bible's Genealogy	Gen	Year	Bible's Genealogy	
83	-1737	Shem?	105	-1157	Nahason	
84	-1708	Arphaxad?	106	-1128	Salmon	
85	-1679	Cainan?	107	-1099	Boaz	
86	-1650	Shelah?	108	-1070	Obed	
89	-1621	Eber?	109	-1041	Jesse	
90	-1592	Peleg?	110	-1012	David	
91	-1563	Reu?	111	-983	Solomon	
92	-1534	Serug?	112	-954	Rehoboam	
93	-1505	Nahor I ?	113	-925	Abijah	
94	-1476	Terah?	114	-896	Asa	
95	-1447	Abram / Abraham (w) Sarai (b) Nahor II	115	-867	Jeohoshplat	
96	-1418	... (Abraham)	116	-838	Jehoram	
97	-1389	Isaac (n) old age son (hb) Ishmael	117	-809	Uzziah	
98	-1360	Jacob / Israel (b) Esau	118	-780	Jotham	
99	-1331	Judah	119	-751	Ahaz	
100	-1302	...	120	-722	Hezekiah	
101	-1273	Pharez/Perez	121	-693	Manasseh	
102	-1244	Esrom/Hezron	122	-664	Amon	
103	-1215	Aram (f) Esrom	Jerahmeel (f) Esrom	123	-635	Josiah (f) Amon
104	-1186	Aminadab	Onam	124	-606	Jeconiah (c) Nebuchadnezzar II

Table 2.56
Genealogy of Bible (Parts 1 and 2) #Gen. 83-124

For the generations preceding David (Abraham to David), both Matthew and Luke give 13 generations, so there is no conflict there. While Luke gives another 10 names (Shem to Terah) before

Abraham, Matthew starts the generations only from Abraham. Only if these 10 generations from Shem up to Abraham be genuine, the actual Biblical history can be taken to have started with Shem (Gen.83, 1738 BCE), otherwise it can be concluded reasonably well that the Biblical history started only with Abraham (Gen.95, 1448 BCE). Clearly, Shem could not have been the son of any Noah as he is said to be born to Noah at 500 years. The list from Adam to Noah in the Bible Genesis is nothing but only a later forgery to lend some antiquity to the Bible and is a copy of an early Sumerian lineage (Alulim to Utnapishtim).

The Exodus (~1238 BCE) of Hebrews from Egypt, led by a young Moses, happened near the start of Gen.102 when the ruler Userkhaure Setnakhte, having ruled only 04 years, died in ~1238 BCE and his son Ramesses III (Gen.102, 1245 BCE) succeeded to throne, as established ahead. It can be noticed that there can only be 250-280 years between the Exodus and the start of construction of temple of Solomon (Gen.111, 984 BCE) against the 480 years given by Bible. Such numbers found in the Bible are purely later interjections that are incorrect.

As the divided kingdoms of Judah and Israel (Samaria) interacted frequently with Assyria, their northern neighbor, and as the dates of Assyrian kings are well-established, the biblical dates from David to Jeconiah can be fixed accurately by relative chronology. So, the historical anchor of the Bible's genealogy is its middle part from David (Gen.110, 1013 BCE) to Jeconiah (Gen.124, 607 BCE). Jeconiah was a known contemporary of Nebuchadnezzar II, the king of Babylon. It can be noticed from the table below that, for this middle part, only the genealogy of Matthew (15 gens.) is historically accurate while that of Luke (21 gens. from David to Neri) is inaccurate. The annals of Assyrian king Shalmaneser III (Gen.115) mention the presence of King Ahab (Gen.115) in the battle of Qarqar that took place in ~853 BCE. Shalmaneser III, whose time is well known, also states that tribute was received from a king Jehu who may be Jehu I (Gen.115), the son of Obed, or

Jehu II (Gen.116), the son of Jehoshaphat, who is said to have exterminated the house of Ahab.

Gen	Year	Israel Kings	Judah Kings	Assyria Kings**
110	-1012	David	David	Tiglath-Pileser II
111	-983	Solomon	Solomon	Ashur-Dan II
112	-954	Rehoboam Jeroboam I+: (f) Nibat	Rehoboam	Adad-nirari II
113	-925	Nadab Baasha+	Abijah	Tukulti-Ninurta II
114	-896	Elah Zimri+ Omri+	Asa (n) wars with Baasha	Ashurnasirpal II
115	-867	Ahab (c) Jehu I: (f) Obed	Jehoshaphat	Shalmaneser III (c) Ahab, Jehu
116	-838	Jehu II+ (f) Jehoshaphat	Jehoram (died at 39) Ahaziah+ : (f) Ahab	Shamshi Adad V
117	-809	Jeroboam II+ (f) Ahaziah	Uzziah+ (f) Jehoram	Adad Nirari III
118	-780	Zechariah Shallum+ Menahem+	Jotham	Ashur Nirari V
119	-751	Pekahiah Pekah+ Hoshea+ (ec) Pharaoh So (Osokon IV) of Egypt	Ahaz	Tiglath Pileser III (c) Sargon II
120	-722	X	Hezekiah	Shalmaneser V / Ululayu (n) defeated Egypt, took Israel (c) Sennacherib+
121	-693	X	Manasseh (n) paid tribute to Esar. & Ashur Banipal	Esarhaddon (f) Sennacherib
122	-664	X	Amon	Ashur Banipal
123	-635	X	Josiah	Ashur-etel-ilani (b) Sin-shar-ishkun Nabopolassar+
124	-606	X	Jeconiah (c) Nebuchadnezzar II	Nebuchadnezzar II
Note: Full genealogies of Assyrian kings are provided later.				

Table 2.57

Genealogy of Bible and Assyrian Kings #Gen. 110-124

Given below is the third part of Biblical Genealogy from Jeconiah to Jesus, as stated differently in Luke and Matthew:

Luke (Correct)						
Gen	Year	Bible's Genealogy	Gen	Year	Bible's Genealogy	
124	-606	Jeconiah	136	-258	Naum	
125	-577	Shealtiel (b) Pedaiah	137	-229	Amos	
126	-548	Zerubbabel	138	-200	Mattathias	
127	-519	Rhesa	139	-171	Joseph	
128	-490	Joanna	140	-142	Janna	
129	-461	Judah	141	-113	Melchi	
130	-432	Joseph	142	-84	Levi	
131	-403	Semei	143	-55	Matthat	
132	-374	Mattathias	144	-26	Heli	
133	-345	Maath	145	3	Joseph (w) Mary	
134	-316	Nagge	146	32	Jesus	
135	-287	Esli	-	-	-	
Matthew (Incorrect)						
124	-606	Jeconiah (c) Nebuchadnezzar II	131	-403	Achim	
125	-577	Shealtiel (b) Pedaiah	132	-374	Eliud	
126	-548	Zerubbabel	133	-345	Eleazar	
127	-519	Abiud	134	-316	Matthan	
128	-490	Eliakim	135	-287	Jacob	
129	-461	Azor	136	-258	Joseph (w) Mary	
130	-432	Zadok	137	-229	Jesus	

Table 2.58
Genealogy of Bible, Part 3 #Gen. 124-146

In the third part from Jeconiah to Jesus, there are no common names in the gospels of Matthew and Luke sparing that of Jesus and his father Joseph. The 3rd part (Jeconiah to Jesus) given by Luke seems correct while that given by Matthew incorrect. The

generation of Jesus, counting by Luke, is Gen.146 (32 CE) and, counting by Matthew, it is Gen.137 (230 BCE). As the first mention of Jesus occurs only in ~90 CE by the roman historian Josephus Flavius¹⁵⁰, Jesus couldn't have existed in Gen.137 (230 BCE) at all because no other historian, in the 320 years that lay between Jesus and Josephus, mentions him. It is known that Josephus Flavius was born in 37 CE, 2 years after the death of Jesus. So Jesus must have died in 35 CE, the 4th year of his generation (Gen.146, 32 CE). As Jesus lived for only 33 years, he must have been born in 2 CE, near the start of his previous generation. His birth from a virgin, however, is just a fancy tale. Both history and genealogy seem to confirm the historicity of Jesus. It is thought by some that Jesus is a fictional persona invented by the Council of Nicaea (273 CE) that was inspired by Serapis, a greco-egyptian deity. The association of Jesus with this cult of Serapis¹⁵¹ is easy to understand. As Jesus was a saintly person, he was deified ("granted sainthood") by the followers of cult of Serapis who found in his legends all the noble and godly qualities ascribed to Serapis. During the council of Nicaea (273 CE), these followers declared themselves as the Christians, as also noted by the then roman emperor.

¹⁵⁰ "Now, there was about this time, Jesus, a wise man, if it be lawful to call him a man, for he was a doer of wonderful works,--a teacher of such men as receive the truth with pleasure. He drew over to him both many of the Jews, and many of the Gentiles. He was [the] Christ; and when Pilate, at the suggestion of the principal men amongst us, had condemned him to the cross, those that loved him at the first did not forsake him, for he appeared to them alive again the third day, as the divine prophets had foretold these and ten thousand other wonderful things concerning him; and the tribe of Christians, so named from him, are not extinct at this day." - Antiquities of the Jews (Antiquities 18.3.3, Whitson Translation)

¹⁵¹ The cult of Serapis that existed in Alexandria in 4th century BCE gained strength by the orders of Ptolemy I of Egypt (366-286 BCE) that promoted Serapis as a deity. This was done possibly as a means to unify the Greeks and Egyptians of his kingdom. A temple of Sarapis (the Roman Serapis) in Egypt is mentioned in 323 BC by Plutarch (Life of Alexander, 76) as well as Arrian (Anabasis, VII, 26, 2).

3.2 Kings of Assyria & The Venus Tablet

The Assyrian generations, being mostly patriarchal, can be fixed by tracing the father-son relationships back up from the time of Shalmaneser III (Gen.115, 868 BCE) and Nebuchadnezzar II (Gen.124, 607 BCE). Tudiya is the first known Assyrian king living out of tents but from him to Ushpia, who is said to have constructed the temple of Ashur in Assur, the names may not be patriarchal as no details are presently known about them. As the genealogical relationships from after Ushpia are more or less clear, the generation of Ushpia can be worked out quite accurately as Gen.69 (2202 BCE) by calculating back and tallying the generations before Shalmaneser III (Gen.115, 868 BCE). At the farthest possible, Tudiya could have existed in Gen.54 (2637 BCE), if the names from him to Ushpia be considered strictly patriarchal. If not, Tudiya existed only later of floods in Gen.56 (2579 BCE).

Gen	Year	Assyria Kings	Gen	Year	Assyria Kings
54	-2636	{Tudiya} (c) Ibrium of Ebla	62	-2404	{Didanu}
55	-2607	{Adamu}	63	-2375	{Hana}
56	-2578	{Yangi}	64	-2346	{Zuabu}
57	-2549	{Suhlamu}	65	-2317	{Nuabu}
58	-2520	{Harharu}	66	-2288	{Abazu}
59	-2491	{Mandaru}	67	-2259	{Belu}
60	-2462	{Imsu}	68	-2230	{Azarah}
61	-2433	{Harsu}	69	-2201	Ushpia

Table 2.59
Assyrian Chronology #Gen. 54-69

Shamshi-Adad I is one of the most-popular earlier Assyrian kings. As can be noticed in the following table, Shamshi-Adad I (Gen.79, 1912 BCE) existed 10 generations after Ushpia (Gen.69, 2202 BCE) and likely born ~1941 BCE, at the start of his previous generation.

Gen	Year	Assyria Kings	
69	-2201	Ushpia (n) found temple of Ashur in Assur	
70	-2172	Apiashal	Sulili Kikkiya+
71	-2143	Hale	Akiya
72	-2114	Samani	Puzur-Ashur I
73	-2085	Hayani	Shalim-ahum
74	-2056	Ilu-Mer	Ilu-shuma (c) Sumu-abum / Su-abu of Babylon
75	-2027	Yakmesi	Ikunum (b) Erishum I (c) Sumu-la-El of Babylon
76	-1998	Yakmeni	Sargon I
77	-1969	Yazkur-el	Puzur-Ashur II
78	-1940	Ilā-kabkabu (b) Aminu	Naram-Suen / Naram-Sin
79	-1911	Shamshi-Adad I (n) defeated by Naram-Suen	Erishum II (c) Yarim-Lim I Shamshi-Adad I+
80	-1882	Ishme-Dagan I (c) Hammurabi of Babylon (c) Hammurabi I	
81	-1853	Asinum (f) Ishme-Dagan I Adasi+ (n) of 7 usurpers, drove out the Babylonians & Amorites	
82	-1824	Bel-bani	
83	-1795	Libaya	
84	-1766	Sharma-Adad I (c) Ammi-saduqa , Venus Tablet (1772-1752 BCE)	
85	-1737	Iptar-Sin (c) Samsu-Ditana (n) Deposed by Hittite king Mursilis towards the end of his reign: Sack of Babylon (1721 BCE)	
86	-1708	Bazaya / Bazaia	
87	-1679	Lullaya+ Shu-Ninua+ : (f) Bazaya	
88	-1650	Ishme-Dagan (b) Sharma Adad II (c) Burnaburiash I of Babylon	Erishum III (f) Shu-Ninua (b) Sharma Adad II (c) Melamkurkura
89	-1621	Ashur-nirari I (b) Shamshi-Adad III (c) Kashtil of Babylon	Shamshi-Adad II
90	-1592	Puzur-Ashur III (c) Ulam Buriash	Ishme-Dagan II (c) Ulam Buriash of Babylon
91	-1563	Enlil-nasir I/II+ (f) Puzur-Ashur III (b) Ashur-nadin-ahhe I	

Table 2.60
Assyrian Chronology #Gen. 69-91

Gen	Year	Assyria Kings	Gen	Year	Assyria Kings	
91	-1563	Enlil-nasir I/II+ (f) Puzur-Ashur III (b) Ashur-nadin-ahhe I	108	-1070	Ashur-rabi II (b) Shalmaneser II: (s) Ashur-nirari IV (SE: 15.06.1063 BCE)	
92	-1534	Ashur-nirari II (b) Ashur-rabi I: (s) Ashur-nadin-ahhe I/II	109	-1041	Ashur-resh-ishi II	
93	-1505	Ashur-bel-nisheshu	110	-1012	Tiglath-Pileser II	
94	-1476	Eriba-Adad I (b) Ashur-rim-nisheshu	111	-983	Ashur-Dan II	
95	-1447	Ashur-uballit I (c) King Tushratta of Mitanni : (sil) Akhenaten of Egypt	112	-954	Adad-nirari II	
96	-1418	Enlil-nirari	113	-925	Tukulti-Ninurta II	
97	-1389	Arik-den-ili	114	-896	Ashur-nasir-pal II	
98	-1360	Adad-nirari I	115	-867	Shalmaneser III (c) Ahab & Jehu of Bible	
99	-1331	Shalmaneser I	116	-838	Shamshi Adad V	
100	-1302	Tukulti-Ninurta I	117	-809	Adad Nirari III	
101	-1273	Ashur-nadin-apli	118	-780	Ashur Nirari V (b) Shalmaneser IV, Ashur-Dan III (SE 15.06.763 BCE)	
102	-1244	Ashur-Dan I (b) Ashur-nirari III	119	-751	Tiglath Pileser III+	Sargon II
103	-1215	Ninurta-tukulti-Ashur (b) Mutakkil-nusku+	120	-722	Shalmaneser V / Ululayu (defeated Egypt, Israel)	Sennacherib / Sin-ahhe-eriba+
104	-1186	Ashur-resh-ishi I	121	-693	Esarhaddon / Ashur-ahha-iddina+ (f) Sennacherib	
105	-1157	Tiglath-Pileser I	122	-664	Ashur Banipal	
106	-1128	Shamshi-Adad IV (b) Asharid-apal-Ekur, Ashur-bel-kala	123	-635	Ashur-etel-ilani (b) Sin-shar-ishkun Nabopolassar+	
107	-1099	Ashur-nasir-pal I	124	-606	Nebuchadnezzar II (c) Jeconiah of Bible	

Table 2.61
Assyrian Chronology #Gen. 91-124

Also, as per the Mari Eponym Chronicle, there was a Solar Eclipse in the next year of birth of Shamshi-Adad I when his uncle¹⁵² Aminum is stated to have passed away as well. A couple of solar eclipses fall about this time (06.11.-1942 16:49, 20.04.-1940 18:21, 10.04.-1939 08:29, 24.08.-1938 08:29, 14.08.-1937 06:04) but, as the month or time of this solar eclipse is not known, nothing can be said about it conclusively.

Now notice the synchronized list of Babylon & Yamhad kings; both Samsu-ditana & Hammurabi III were deposed by Mursilis:

Gen	Year	Babylonia	Yamhad (Aleppo)
78	-1940	Apil-Sin	Sumu-Epuh
79	-1911	Sin-muballit	Yarim-Lim I
80	-1882	Hammurabi (c) Hammurabi I	Hammurabi I (c) Hammurabi
81	-1853	Samsu-iluna	Abba-El I
82	-1824	Abi-eshuh / Abieshu	Yarim-Lim II
83	-1795	Ammi-ditana	Niqmi-Epuh
84	-1766	Ammi-saduqa / Ammisaduqa (Venus tablet 1772-1752 BCE)	Irkabtum (b) Yarim-Lim III Hammurabi II+ Yarim-Lim III+
85	-1737	Samsu-ditana (n) Double Eclipse at the end of reign: (LE: 02.06.-1720 @ 04:59, SE: 16.06.-1720 @ 09:06) (n) Sack of Babylon by Hittite king Mursilis: 1721 BCE	Hammurabi III (n) Sack of Aleppo by Hittite king Mursilis (b) Sarra-El+

Table 2.62
Synchronized Lists of Babylonia and Yamhad #Gen. 78-85

¹⁵² As per the Assyrian kings List, Aminu/Aminum is stated to be a son of Ilā-Kabkabu, as was Shamshi-Adad I. But, as per the Mari Eponym Chronicle, Aminum died as an adult in the next year of Shamshi-Adad I's birth, so clearly, he must be a younger brother of Ilā-Kabkabu rather than his son and thus an uncle of Shamshi-Adad I.

The Venus tablet¹⁵³, originally authored by Ammi-saduqa (Gen.84, 1767 BCE) and revised by posterity, supposedly notes the heliacal risings and settings of Venus for all 21 years of Ammi-saduqa's reign. These cyclic risings & settings of Venus, known as the Venus Solutions, have a periodicity of 8 years as can be noticed from the rearranged and regrouped text of the Venus tablet:

Years	Nature of Venus Tablet Observations of Ammi-saduqa (I.V. = Inferior Venus, S.V. = Superior Venus, E = East, W = West)
1/9/17	I.V. sets on (day A) and after (2/3 days) rises on (day B)
2/10/18	S.V. vanishes E on (day A) and after (1 month 25 days) appears W on (day B)
3/11/19	I.V. sets on (day A) and after (16/17 days) rises on (day B)
4/12/20	S.V. vanishes E on (day A) and after (2 months 6 days) appears W on (day B)
5/13/21	I.V. sets on (day A) and after (12/11 days) rises on (day B)
5/13/21	S.V. vanishes E on (day A) and after (2 months 3 days) appears W on (day B)
6/14	I.V. sets on (day A) and after (3 days) rises on (day B)
7/15	S.V. vanishes E on (day A) and after (2 months) appears W on (day B)
8/16	I.V. sets on (day A) and after (17/16 days) rises on (day B)
8/16	S.V. vanishes E on (day A) and after (2 months 16/15 days) appears W on (day B)

Table 2.63
Venus Tablet: Observation Groups

Samsu-ditana was the successor of Ammi-saduqa and the double eclipse at the end of his 31-year reign occurred 52 years (21+31) later of the start of Ammi-saduqa's 21-year reign that was indicated by the first year of a Venus Solution. As specific months are named for the Venus solution corresponding to the 21-year reign of Ammi-saduqa (starting with Shabatu 15 in year #1) and as the Double Eclipse of Samsu-ditana, recorded in the EAE (Enuma

¹⁵³ The authorship of the Venus tablet was first identified by Franz Xaver Kugler (1912 CE), who could clearly match the enigmatic "Year of the Golden Throne" eponym with the 8th year of Ammi-saduqa's reign.

Anu Enlil) text, is specified to have fell on a certain date (Simanu 15), the times of both these kings can be determined with absolute certainty once the nature and scheme of these ancient Mesopotamian (Sumerian / Assyrian / Babylonian) months becomes known. Notwithstanding that, all such combinations that fall about Gen.84, the genealogically calculated time range for Ammi-saduqa, can be pre-evaluated for a likely match. It is well established that the month Simanu falls about June (May/June/July), as attested by the Eponyms list that records the solar eclipse of 763 BCE (15.06.-762, in 9th year of Ashur-Dan III) falling in the month of Simanu. Now, notice the table given below. It can be seen that the only possible match for the double eclipse of Samsu-ditana, which fell about the month of June, which came 52 years after a Venus Solution date and which satisfies Samsu-ditana's placement in Gen.85, is option 1 wherein it fell in June 1721 BCE. The lunar eclipse of this double eclipse also satisfies the record that states of setting moon to be still eclipsed (at Sunrise).

No.	Venus Solution Year: "A"	Double Eclipse of Samsu-ditana (LE: Simanu/15) between "A" & "B"		Reign End "B" (A+52)	Yes / No / Maybe
		Lunar Eclipse	Solar Eclipse		
1	-1772	02.06.-1720 @ 04:59	16.06.-1720 @ 09:06	-1720	Y
2	-1764	14.09.-1716 @ 05:30	28.09.-1716 @ 06:27	-1712	N
3	-1764	08.01.-1712 @ 07:15	22.01.-1712 @ 11:14	-1712	N
4	-1756	14.08.-1705 @ 04:55	29.08.-1705 @ 14:12	-1704	N
5	-1748	31.03.-1698 @ 23:17	16.04.-1698 @ 12:34	-1696	N
6	-1740	13.05.-1691 @ 02:00	27.05.-1691 @ 11:30	-1688	M
7	-1732	13.05.-1691 @ 02:00	27.05.-1691 @ 11:30	-1680	N
8	-1733	13.05.-1691 @ 02:00	27.05.-1691 @ 11:30	-1681	N

Table 2.64

The Venus Solution and the End of Ammi-saduqa's Reign

Now, as the stated months of the corresponding Venus solution (1772-1752 BCE) also fall near their expected rough positions, the exact dates of Ammi-saduqa stand revealed only if the nature and

scheme of these months also be known. As all the lunar eclipses mentioned in the EAE text occur only in the middle of the month (on 14th/15th day) near Full Moon, the ancient Mesopotamian months are clearly the lunar months and not the fixed 30-day solar months as some take them to be. The solar months (of the same names) were introduced in Babylon much later by the Chaldeans when the rules of intercalation were long forgotten. On investigation, we find that the Mesopotamian calendar, with some minor differences, is completely identical with the Vedic calendar including the intercalated months and the intercalation rules. This is perfectly understandable as all ancient world civilizations have their ultimate origin in Vedic Indian civilization.

So, to get the ancient Mesopotamian calendar for any given year, only the Vedic calendar need be computed and the months be read interchangeably as indicated in the table below:

No.	Vedic	Mesopot.	Eng.	No.	Vedic	Mesopot.	Eng.
1	<i>Māgha</i>	Shabatu	~Jan	7	<i>Śrāvana</i>	Abu	~Jul
2	<i>Phālguna</i>	Adaru	~Feb	8	<i>Bhādrapada</i>	Ululu	~Aug
3	<i>Caitra</i>	Nisanu	~Mar	9	<i>Aśvin</i>	Tashritu	~Sep
4	<i>Vaisākha</i>	Ayaru	~Apr	10	<i>Kārtika</i>	Arahsamnu	~Oct
5	<i>Jyeṣṭha</i>	Simanu	~May	11	<i>Mārgaśīrṣa</i>	Kislimu	~Nov
6	<i>Āṣāḍha</i>	Dumuzu	~Jun	12	<i>Pauṣa</i>	Tabetu	~Dec

Table 2.65
Ammi-saduqa's reign and the Venus Solution

Now note the three minor differences:

- While the Vedic dates range from 1-16 for each of the lunar fortnights (Bright-Half / Dark-Half) separately, the Mesopotamian dates range from 1-30 continuously, starting from a New Moon Day up to the next New Moon Day.
- In the Vedic reckoning, the next day of a New Moon Day is the first day of a month while, in the Mesopotamian reckoning, the New Moon Day itself is the first day of a month.

- In the Vedic reckoning, if the New Moon Point (NMP) occurs before a local noon, the same day is taken as a New Moon Day, else the next day is the New Moon day. In the Mesopotamian reckoning, the faintest Lunar crescent visible at Sunset, just as the Moon overtook the Sun, was required to reckon that day as the New Moon Day.

The proof of the Mesopotamian calendar being identical to the Vedic calendar is the solar eclipse of Bur Sagale (Jun 15, 763 BCE: 15.06.-762, Maximum at 10:48:02 AST) that is recorded in the Eponyms list¹⁵⁴ to have occurred in the month of Simanu in the 9th year of reign of Ashur-Dan III (Gen.118, 781 BCE). It can be seen that it occurred on the last day of Simanu:

No	Month	First Day	Full Moon Day
4	Vaisākha / Ayaru	19.04.-762	02.05.-762
5	Jyeṣṭha / Simanu	18.05.-762	01.06.-762
6	Āśāḍha / Dumuzu	16.06.-762 (NMP: 15.06.-762 11:11)	30.06.-762

Table 2.66
Vedic Calendar of 763 BCE (AST)

With the secret now known, we can accurately compute the ancient Mesopotamian calendars. The start of 21-year reign of Ammi-saduqa can thus be dated with absolute certainty to 1772 BCE (Year 1 Start: 30.12.-1772) and the end of 31-year reign of his successor Samsu-ditana, which came exactly 52 years later, can be dated to 1721 BCE wherein also occurred a Double Eclipse (LE: 02.06.-1720 @ 04:59 Hrs, SE: 16.06.-1720 09:06 Hrs) in the month of Simanu (Jyeṣṭha). See the following table:

¹⁵⁴ “[763/762] During the eponymy of Bur-Saggile, governor of Guzana, revolt in Libbi-ali; in Simanu eclipse of the sun.” - Assyrian Eponym List (2/2) from Text #9 of the Mesopotamian Chronicles (2004), a translation of Jean-Jacques Glassner's Chroniques Mesopotamiennes (1993)

No	Month	First Day	Full Moon Day
(A)	Year #1 of Venus Solution: 1772 BCE (Shabatu 15: 30.12.-1772)		
1	Māgha / Shabatu (@ Shabatu 15)	17.12.-1772 (NMP: 16.12.-1772 06:08)	30.12.-1772 (FMP: 30.12.-1772 05:53)
2	Phālguna / Adaru	16.01.-1771	29.01.-1771
3	Caitra / Nisanu	14.02.-1771	28.02.-1771
First Year Observation of Venus Tablet:			
("Inferior Venus sets on Shabatu 15 and after 3 days rises on Shabatu 18")			
Shabatu 15 (Sunset: 30.12.-1772 17:04:27, Venus Alt-Diff: 5.99°)			
Shabatu 18 (Sunrise: 02.01.-1771 07:10:10, Venus Alt-Diff: 6.23°)			
(B)	Double Eclipse after 52 years: 1721 BCE (Simanu 15: 02.06.-1720)		
4	Vaisākha / Ayaru	19.04.-1720	04.05.-1720
5	Jyeṣṭha / Simanu (@ Simanu 15)	19.05.-1720 (NMP: 17.05.-1720 20:06)	02.06.-1720 (FMP: 02.06.-1720 04:51)
6	Āṣāḍha / Dumuzu	17.06.-1720	02.07.-1720

Table 2.67

Vedic Calendars of Years 1771 BCE and 1721 BCE (AST)

As the greatly learned Indian sage *Vedavyāsa* has rightly noted in the *Mahābhārata* text, Double Eclipses (wherever visible) are said to be extremely ominous for the royalty that both Sun and Moon represent. Here, the double eclipse of Samsu-ditana not only indicated the end of his reign but also indicated the impending destruction of his city-state of Babylon, that later lay desolate for almost a full generation (24 years). The Hittite king Mursilis who destroyed Babylon had also sacked the nearby kingdom of Yamhad (Aleppo) that was ruled by Hammurabi III at that time.

Also, about the Venus tablet, it seems that its observations were made in different times and some later kings such as Ashur Banipal had all of these synthesized on one tablet. This is also the opinion of many others who have analyzed the Venus tablet independently. Nonetheless, it can be checked that the very first observation, for the first year of Ammi-saduqa's 21-year reign, is a 100% match. The observation was made at Babylon.

3.3 Synchronized Lists of Assyria & Babylonia

Now a synchronized list of kings of Assyria and Babylonia, as indicated by relative chronology, is provided below. It should be kept in mind that the Babylonian list is not much patriarchal.

Gen	Year	Assyria Kings	Babylonia Kings
69	-2201	Ushpia	-
70	-2172	Sulili Kikkiya+	-
71	-2143	Akiya	-
72	-2114	Puzur-Ashur I	-
73	-2085	Shalim-ahum	-
74	-2056	Ilu-shuma (c) Sumu-abum / Su-abu	-
75	-2027	Ikunum (b) Erishum I (c) Sumu-la-El	Sumu-abum / Su-abu (c) Ikunum of Assyria
76	-1998	Sargon I	Sumu-la-El (c) Erishum I of Assyria
77	-1969	Puzur-Ashur II	Sabium / Sabum
78	-1940	Naram-Suen / Naram-Sin	Apil-Sin
79	-1911	Erishum II (c) Yarim-Lim I Shamshi-Adad I+	Sin-muballit
80	-1882	Ishme-Dagan I (c) Hammurabi	Hammurabi
81	-1853	Asinum Adasi+ (of 7 usurpers)	Samsu-iluna
82	-1824	Bel-bani	Abi-eshuh / Abieshu
83	-1795	Libaya	Ammi-ditana
84	-1766	Sharma-Adad I (n) Ammi-saduqa	Ammi-saduqa: (n) Venus Tablet: 1772-1752 BCE
85	-1737	Iptar-Sin (c) Samsu-ditana	Samsu-ditana: (n) Deposed by Hittite king Mursilis at the end of his reign: The Sack of Babylon
86	-1708	Bazaya / Bazaia	--- (n) Babylon deserted: 24 years

Table 2.68

Synchronized Lists of Assyria & Babylonia #Gen. 69-86

Gen	Year	Assyria Kings	Babylonia Kings
87	-1679	Lullaya+ Shu-Ninua+ : (f) Bazaya	Agum II / Agum-Kakrime+
88	-1650	Ishme-Dagan (b) Sharma Adad II (c) Burnaburiash I	Burnaburiash I (c) Ishme-Dagan
89	-1621	Ashur-nirari I (b) Shamshi-Adad III (c) Kashtil (Kashtiliash III)	Kashtiliash III (c) Ashur-nirari I
90	-1592	Puzur-Ashur III (c) Ulam Buriaš	Ulam Buriaš (n) Conquers the first Sealand dynasty, Treaty with Puzur-Ashur III
91	-1563	Enlil-nasir I/II (b) Ashur-nadin-ahhe I/II	Agum III
92	-1534	Ashur-nirari II (cb) Ashur-rabi I: son of Ashur-nadin-ahhe I/II	Karaindash (n) Treaty with Ashur-bel-nisheshu
93	-1505	Ashur-bel-nisheshu	Kadashman-harbe I
94	-1476	Eriba-Adad I (b) Ashur-rim-nisheshu	Kurigalzu I (sil) Amenhotep III (c) Thutmosis IV of Egypt
95	-1447	Ashur-uballit I (c) Amenhotep III of Egypt, Tushratta of Mitanni: (sil) Akhenaten of Egypt	Kadashman-Enlil I (c) Amenhotep III of Egypt (Amarna Letters)
96	-1418	Enlil-nirari	Burnaburiash II (fil) Ashur-uballit I (c) Akhenaten of Egypt
97	-1389	Arik-den-ili	Kara-hardash (gf) Ashur-uballit I Nazi-Bugash+ (Usurper) Kurigalzu II+ (n) Fought Battle of Sugagi with Enlil-nirari
98	-1360	Adad-nirari I	Nazi-Maruttash (c) Adad-nirari I
99	-1331	Shalmaneser I (n) reckons 580 years from (start of reign of) Erishum (II)	Kadashman-Turgu (c) Hattusili III, Mursili II+ (SE. of 24.06.1312 BCE) of the Hittites, Ramesses II of Egypt Kadashman-Enlil II+
100	-1302	Tukulti-Ninurta I (c) Ramesses II of Egypt who fought in the Battle of Kadesh (n) reckons 720 years from (end of reign of) Ilushima	Kudur-Enlil Shagarakti-Shuriash+ (non-son of Kadashman-Enlil II) Kashtiliashu IV+ (n) deposed by Tukulti-Ninurta I

Table 2.69

Synchronized Lists of Assyria & Babylonia #Gen. 87-100

Gen	Year	Assyria Kings	Babylonia Kings
101	-1273	Ashur-nadin-apli	Enlil-nadin-shumi+ Kadashman-Harbe II+ Adad-shuma-iddina+ (Governors under Tukulti-Ninurta)
102	-1244	Ashur-Dan I (b) Ashur-nirari III	Adad-shuma-usur (c) Ashur-nirari III
103	-1215	Ninurta-tukulti-Ashur (b) Mutakkil-nusku+	Meli-Shipak II Marduk-apla-iddina I+
104	-1186	Ashur-resh-ishi I	Enlil-nadin-ahi (n) deposed by Shutruk-Nahhunte of Elam, ending the Kassite Dynasty
105	-1157	Tiglath-Pileser I (n) reckons 701 years from (the death of) Shamshi-Adad I	Nabu-shum-libur: Simbar-shipak+: (f) Eriba-Sin
106	-1128	Shamshi-Adad IV (b) Asharid-apal-Ekur, Ashur-bel-kala	Adad-apla-iddina (c) Ashur-bel-kala Marduk-ahhe-eriba Ea-mukin-zeri (c) Shamshi-Adad IV
107	-1099	Ashur-nasir-pal I	Kashshu-nadin-ahi (c) Ashur-nasir-pal I
108	-1070	Ashur-rabi II (b) Shalmaneser II, father of Ashur-nirari IV	Eulmash-shakin-shumi Shirikti-shuqamuna (b) Ninurta-kudurri-usur I
109	-1041	Ashur-resh-ishi II	Mar-bitu-apla-usur
110	-1012	Tiglath-Pileser II	Nabû-mukin-apli (c) Tiglath-Pileser II
111	-983	Ashur-Dan II	Mar-bitu-ahhe-iddina (c) Ashur-Dan II (b) Ninurta-kudurri-uşur II
112	-954	Adad-nirari II	Shamash-mudammiq (n) Lost territory to Adad-nirari II
113	-925	Tukulti-Ninurta II	Nabu-shuma-ukin I (n) Gained territory from Adad-nirari II
114	-896	Ashur-nasir-pal II	Nabu-apla-iddina
115	-867	Shalmaneser III	Marduk-zakir-shumi I (n) subjugated by Shalmaneser III
116	-838	Shamshi Adad V	Marduk-balassu-iqbi (n) subjugated by Shalmaneser III
117	-809	Adad-nirari III	Baba-aha-iddina (n) subjugated by Adad-nirari III of Assyria (Chaldean Usurpers)+

Table 2.70
Synchronized Lists of Assyria & Babylonia #Gen. 101-117

Gen	Year	Assyria Kings	Babylonia Kings
118	-780	Ashur Nirari V (b) Shalmaneser IV, Ashur-Dan III (SE: 15.06.763 BCE - Solar Eclipse in 9Y, Simanu Month)	Nabu-nasir / Nabonassar+ (n) Overthrew Chaldeans, restored native Babylonian rule; subjugated by Tiglath-Pileser III
119	-751	Tiglath Pileser III+	Sargon II (c) Tiglath Pileser III+
120	-722	Shalmaneser V / Ululayu (n) defeated Egypt, took Israel (c) Sennacherib+	Sennacherib / Sin-ahhe-eriba
121	-693	Esarhaddon / Ashur-ahha-iddina (f) Senacharib (n) reckons 434 years from Shamshi Adad (IV)	Ashur-nadin-shumi (b) Esarhaddon Nergal-ushezib+ (a Chaldean)
122	-664	Ashur Banipal (b) Shamash-shum-ukin	Mushezib-Marduk Shamash-shum-ukin+ Kandalanu+ (gov under Banipal)
123	-635	Ashur-etel-ilani (b) Sin-shar-ishkun Nabopolassar+ (fall of Nineveh)	Sin-shumu-lishir Sin-shar-ishkun+ Nabopolassar+
124	-606	Nebuchadnezzar II / Nabu-kudurri-usur (n) Assyria became a part of Babylonia after the fall of Nineveh	

Table 2.71
Synchronized Lists of Assyria & Babylonia #Gen. 118-124

Gen	Year	Babylonia	Gen	Year	Babylonia
125	-577	Amel-Marduk+ Nergal-shar-usur+ Labashi-Marduk+ Nabonidus+ Cyrus+ (the Great)	130	-432	Artaxerxes II Mnemon
126	-548	Cambyses II (b) Bardiya Darius I+ (fil) Cyrus	131	-403	Artaxerxes III Ochus
127	-519	Xerxes I (the Great)	132	-374	Artaxerxes IV Arses
128	-490	Artaxerxes I Longimanus	133	-345	Darius III Codomannus
129	-461	Darius II Nothus (b) Xerxes II	134	-316	Alexander III (the Great) (n) died 323 BCE, 33 years old

Table 2.72
List of Babylonia up to Alexander #Gen. 125-134

Amel-Marduk (Gen.125, 578 BCE), the successor of Nebuchadnezzar II, released Jeconiah (of Bible) after his 37 years in captivity. Now, see the list of First Sealand dynasty that broke away from Samsu-iluna and ruled in far south Mesopotamia:

Gen	Year	Assyria	Babylonia	Sealand
81	-1853	Asinum (f) Ishme-Dagan I Adasi+ (7 Usurpers)	Samsu-iluna	I lum-ma-ili (c) Samsu-iluna (lc) Abieshu Itti-ili-nibi
82	-1824	Bel-bani (b) Libaya, Iptar-Sin, Sharma-Adad I	Abieshu	Damqi-ilishu II (n) his city walls for Der demolished by Ammi-ditana (ec) Adasi Ishukibal+ (c) Bel-bani
83	-1795	Libaya	Ammi-ditana	Shushi (c) Libaya
84	-1766	Sharma-Adad I	Ammi-saduqa: (Venus Tablet of Ammisaduqa)	Gulk / Gulkishar (c) Sharma-Adad I, Samsu-Ditana
85	-1737	Iptar-Sin (LIK.KUD-Shamash?)	Samsu-Ditana: (Deposed by Hitite king Mursilis)	Dish-u-en (c) LIK.KUD-Shamash
86	-1708	Bazaya / Bazaia (c) Peshgaldaramesh	X (n) Babylon lay deserted for 24 years	Pesh-gal / Peshgaldaramesh (c) Bazaya / Bazaia
87	-1679	Lullaya+ Shu-Ninua+: (f) Bazaya	Agum II or Agum-Kakrime	A-a-dara / Ayadaragalama (c) Lullaya
88	-1650	Ishme-Dagan (b) Sharma Adad II (c) Burnaburiash	Burnaburiash I (c) Ishme-Dagan	Erukul / Akurduana (ec) Shu-Ninua
89	-1621	Ashur-nirari I (b) Shamshi-Adad III (c) Kashtil	Kashtiliash III (c) Ashur-nirari I	Melamma / Melamkurkura
90	-1592	Puzur-Ashur III (c) Ulam Buriash	Ulam Buriash (n) Conquers the first Sealand dynasty (c) Puzur-Ashur III	Eaga / Ea-gamil (n) Overthrown by Ulam Buriash

Table 2.73

First Sealand Dynasty #Gen. 81-90

3.4 Lists of Larsa, Isin, Kish, Akshak & Ur

Hammurabi (Gen.80, 1883 BCE), the famous Babylonian king, becomes the key anchor in unraveling all other dates of the ancient Mesopotamian history through Ibi-Suen of Ur and Ishbi-Erra of Isin, who both existed 11 generations before Hammurabi:

Gen	Year	Larsa	Babylonia	Isin
69	-2201	Naplanum (c) Ibi-Suen	-	Ibi-Suen (King of Ur) Ishbi-Erra+
70	-2172	Emisum	-	Shu-Ilishu
71	-2143	Samium	-	Iddin-Dagan
72	-2114	Zabaia	-	Ishme-Dagan
73	-2085	Gungunam (n) won independence from: (c) Lipit-Eshtar, of Isin	-	Lipit-Eshtar (c) Gungunum of Larsa
74	-2056	Abisare	-	Ur-Ninurta+: (f) Ishkur (c) Abisare of Larsa
75	-2027	Sumuel	Sumu-abum / Su-abu	Bur-Suen
76	-1998	Nur-Adad (c) Sumu-la-El	Sumu-la-El	Lipit-Enlil (b) Erra-imitti
77	-1969	Sin-Iddinam (b?) Sin-Eribam+ (2Y)	Sabium / Sabum	Enlil-bani+ (gardener of Erra-imitti)
78	-1940	Sin-Iqisham (c) Zambiya Silli-Adad+ (1Y)	Apil-Sin	Zambiya: (c) Sin-Iqisham of Larsa Iter-pisha+ Ur-du-kuga+ Suen-magir+
79	-1911	Warad-Sin+ (b) Rim-Sin I+	Sin-muballit	Damiq-ilishu Rim-Sin I+ (b) Warad-Sin
80	-1882	Hammurabi+	Hammurabi+	-

Table 2.74
Larsa, Babylonia and Isin #Gen. 69-80

Ibi-Suen (Gen.69, 2202 BCE) of Ur was defeated by Ishbi-Erra of Isin as per the Sumerian kings list. The generations of Kug-bau of Kish and Gilgamesh (half-brother of Ur-Nammu of Ur) can be worked out from that of Ibi-Suen; it can also be noticed that Sargon of Akkad was a contemporary of Ibi-Suen and Ishbi-Erra.

Gen	Year	Kish	Akshak	Ur
65	-2317	Ilku (15Y) Iltasadum+ (20Y)	X	Tirigan+ Utu-hengal+
66	-2288	En-me-barage-si (15Y) (c) Dumuzid ["the shepherd"] Aga of Kish (10Y) (c) Gilgamesh, - half bro. of Ur-Nammu (d?) Kug-Bau	Unzi	Ur-Nammu+ (fil) Utu-hengal (m) Ninsun (hb) Gilgamesh: (c) Aga of Kish
67	-2259	Kug-Bau / Kubaba (c) En-anna-tum I of Lagash; En-shag- kush-ana of Uruk; Puzur-Nirah of Akshak	Undalulu+ Urur+ Puzur-Nirah+ (c) Kug-Bau of Kish	Shulgi (n) Double Ecl. in his 23 rd year (2254 BCE), Lunar Ecl. in his 48 th year (2229 BCE)
68	-2230	Puzur-Suen (not "the son of Hablu")	Ishu II (c) Shu-Sin+ ["Then Akshak was defeated and the kingship was taken to Kish"]	Amar-Sin (b) Shu-Sin+ (deposed Ishu II of Akshak)
69	-2201	Ur-Zababa (c) Sargon of Akkad: was his cup-bearer Zimudar:	X	Ibi-Suen (n) Lunar Ecl. in his 18 th year (2187 BCE) Ishbi-Erra+ (of Isin)
70	-2172	Usi-watar Eshtar-muti+ Ishme-Shamash+ Shu-Ilishu+: (f) Ishbi-Erra of Isin ["Then Kish was defeated and kingship was taken to Uruk."]	X	Shu-Ilishu (of Isin)

Table 2.75

Kish, Akshak and Ur #Gen. 65-70

Also notice the synchronized list of the line of Sargon of Akkad:

Gen	Year	Akkad	Isin	Assur / Assyria
69	-2201	Sargon, of Akkad (c) Lugal-zage-si: overthrown by him	Iibi-Suen (of Ur) (n) Lunar Ecl. in his 18 th year (2187 BCE) Ishbi-Erra+	Ushpia (n) found the temple of Ashur in Assur
70	-2172	Manishtushu (s) Rimush	Shu-Ilisu	Sulili Kikkiya+
71	-2143	Naram-Sin	Iddin-Dagan	Akiya
72	-2114	Shar-kali-sharri	Ishme-Dagan	Puzur-Ashur I
73	-2085	Dudu+	Lipit-Eshtar (c) Gungunum of Larsa	Shalim-ahum
74	-2056	Shudurul	Ur-Ninurta+ ("the son of Ishkur") (c) Abisare of Larsa	Ilu-shuma (c) Sumu- abum / Su-abu
75	-2027	X	Bur-Suen	Ikunum (b) Erishum I (c) Sumu-1a-El
76	-1998	X	Lipit-Enlil (b) Erra-imitti	Sargon I
77	-1969	X	Enlil-bani+ (n) gardener of Erra- imitti	Puzur-Ashur II
78	-1940	X	Zambiya (c) Sin- Iqisham of Larsa Iter-pisha+ Ur-du- kuga+ Suen-magir+	Naram-Suen / Naram-Sin

Table 2.76
Akkad, Isin and Assyria #Gen. 69-78

These lists can be verified by known eclipses. In the 23rd regnal year of Shulgi (Gen.67, 2260 BCE), who ruled for 48 years, a Double Eclipse is stated to have occurred. Then, the EAE text also records one lunar eclipse (EAE 20, The First Ur Eclipse: 14/III/48 - Nisanu 14, 48th year) at the end of his reign. After Shulgi, his sons Amar-Sin and Shu-Sin ruled for 9 years each. Then Ibi-Suen, the son of Shu-Sin, ruled for 24 years before being deposed by Ishbi-Erra of Isin. A lunar eclipse (EAE 21 & 20, The Second Ur Eclipse

on 14/XII/24: Tebetu 14, 24th year) is recorded for **Ibi-Suen just before he was deposed**. On searching, we are able to accurately pinpoint the double eclipse of Shulgi which occurred 25 years (48-23) before the First Ur Eclipse, as well as the two lunar eclipses (First/Second Ur Eclipses) that occurred 42 years (9+9+24) apart:

No	Month	First Day	Full Moon Day
(A) Double Eclipse of Shulgi: 29/VII/23 (SE) & 14/VIII/23 (LE): 23 rd Yr.			
SE: Jul 29, 2254 BCE (Max. at 29.07.-2253 @ 19:55:16) LE: Aug 12, 2254 BCE (Max at 12.08.-2253 @ 19:02:28)			
7	<i>Śrāvāṇa / Abu</i>	01.07.-2253	14.07.-2253
8	<i>Bhādrapada / Ululu</i>	31.07.-2253 (NMP: 29.07.-2253 18:41)	13.08.-2253 (FMP: 12.08.-2253 17:31)
9	<i>Aśvin / Tashritu</i>	29.08.-2253	11.09.-2253
(B) EEAE20, First Ur Eclipse: 14/III/48 - Nisanu 14, 48 th Yr. of Shulgi LE: Apr 09, 2229 BCE (Max. at 09.04.-2228 21:46:51)			
2	<i>Phālguna / Adaru</i>	27.02.-2228	12.03.-2228
3	<i>Caitra / Nisanu</i>	28.03.-2228	10.04.-2228 (FMP: 09.04.-2228 21:49)
4	<i>Vaisākha / Ayaru</i>	26.04.-2228	09.05.-2228
(C) EEAE21 & 20, Second Ur Eclipse: 14/XII/24 - Tebetu 14, 24 th Yr. of Ibi-Suen; 42 Years (9+9+24) after First Ur Eclipse LE: Dec 18, 2187 BCE (Max. at 18.12.-2186 06:52:25)			
11	<i>Mārgaśīrṣa / Kislimu</i>	05.11.-2186	19.11.-2186
12	<i>Pauṣa / Tebetu</i>	05.12.-2186	18.12.-2186 (FMP: 18.12.-2186 08:27)
1	<i>Māgha / Shabatu</i>	03.01.-2185	17.01.-2185

Table 2.77
Eclipses of Shulgi and Ibi-Suen at Ur (AST)

It's known that the First Eclipse of Ur began in first watch in the east and ended in the west at the beginning of second watch, this too can be noticed to be true. So, **Shulgi became king in 2281 BCE, 48 years before 2229 BCE, at a very young age as his father Ur-Nammu died quite early**, after having ruled for only 17 years.

The Second Ur Eclipse occurred in 2187 BCE (Tebetu month), a year that had an intercalated month of Dumuzu in its middle. This proves that the ancient Mesopotamian calendar followed the intercalation rules of Vedic calendar because, if not, the month of Tebetu would have come a month earlier, but without an eclipse:

No	Month	First Day	Full Moon Day
1	<i>Māgha</i> / Shabatu	16.12.-2187	29.12.-2187
2	<i>Phālguna</i> / Adaru	14.01.-2186	27.01.-2186
3	<i>Caitra</i> / Nisanu	13.02.-2186	26.02.-2186
4	<i>Vaisākha</i> / Ayaru	14.03.-2186	27.03.-2186
5	<i>Jyeṣṭha</i> / Simanu	13.04.-2186	26.04.-2186
6.1	<i>Āṣāḍha</i> / Dumuzu (<i>Adhika</i> / Intercalary)	12.05.-2186	26.05.-2186
6.2	<i>Āṣāḍha</i> / Dumuzu	10.06.-2186	24.06.-2186
7	<i>Śrāvaṇa</i> / Abu	09.07.-2186	24.07.-2186
8	<i>Bhādrapada</i> / Ululu	08.08.-2186	22.08.-2186
9	<i>Aśvin</i> / Tashritu	06.09.-2186	21.09.-2186
10	<i>Kārtika</i> / Arahsamnu	06.10.-2186	20.10.-2186
11	<i>Mārgaśīrṣa</i> / Kislimu	05.11.-2186	19.11.-2186
12	<i>Pauṣa</i> / Tebetu	05.12.-2186	18.12.-2186 (FMP: 18.12.-2186 08:27)

Table 2.78
Vedic Calendar of 2187 BCE (AST)

Now, it is known that a lady **Ninsun was mother to both Gilgamesh and Ur-Nammu (Gen.66, 2289 BCE)**, the father of Shulgi of Ur, but through different partners. So, Gilgamesh and Aga of Kish, his known contemporary, both belong to Gen.66, alongside Ur-Nammu, the half-brother of Gilgamesh. But as Kug-Bau of Kish already exists in Gen.67, it can be inferred that Kug-Bau was most likely a daughter of Aga. Aga and his sons must have been killed in war when Gilgamesh attacked and destroyed Kish, following which Kug-Bau took over, likely by submitting to **En-anna-tum I** of Lagash. She later won her independence from him. Now, see the placement of Kug-Bau:

Gen	Year	(Y) Kish	(Y) Unug / Uruk	(Y) Lagash
61	-2433	Mashda (14Y) Arwium (12Y)	X	X
62	-2404	Etana (25Y) [<i>"the shepherd, who ascended to heaven"</i>] Balih+ (6.66Y)	X	Enhengal
63	-2375	En-me-nuna (11Y) Melem-Kish+ (15Y)	Utu	Lugal-Suggur
64	-2346	Barsal-nuna (20Y) Zamug+ (2.33Y) Tizqar+ (5.08Y)	Mesh-ki-ang-gasher of E-ana (5.4 Y) (n) son of Utu	Ur-Nanshe / Ur-nina+
65	-2317	Ilku (15Y) Iltasadum+ (20Y)	Enmerkar (7Y) [<i>"the king of Unug who built Unug"</i>] Lugalbanda+ (20Y) [" <i>the shepherd</i> "]	Akurgal
66	-2288	En-me-barage-si (15Y) (c) Dumuzid [" <i>the shepherd</i> "] Aga of Kish (10Y) (c) Gilgamesh (d?) Kug-Bau	Gilgamesh (hb) Dumuzu [" <i>He captured En-me-barage-si single-handedly.</i> "] (hb) Ur-Nammu of Ur (c) Aga of Kish	Eannatum+ (b) En-anna-tum I+ (c) En-shag-kush-ana
67	-2259	Kug-Bau (n) gained independence from En-anna-tum I of Lagash who took Kish after sack by Gilgamesh	Ur-Nungal	Entemena (f) En-anna-tum I (c) Lugal-ure of Uruk, defeated Illi of Umma Enanatum II+
68	-2230	Puzur-Suen (not the son of Hablum of Gutiam)	Udul-kalama (b?) La-ba'shum (9Y), En-nun-tarah-ana (8Y)	Enentarzid: Lugalanda:
69	-2201	Ur-Zababa (c) Sargon of Akkad Zimudar+	Mesh-he [" <i>the smith</i> "] (b?) Melem-ana (6Y)	Urukagina: (c) defeated by Lugal-zage-si , who was defeated by Sargon
70	-2172	Usi-watar Eshtar-muti+ Ishme-Shamash+ Shu-Ilishu+	Lugal-kitun (R1)	X

Table 2.79
Kish, Uruk and Lagash #Gen. 61-70

It should be noted that some extra-large years of reign (1200 / 900 years etc.) of the early lists seem to be misinterpreted owing to the hexadecimal base that was in use earlier and these need to be divided by 60 to get the accurate reign period, so a specified reign period of 1200 years actually means only 20 years (1200/60). Going by the reign years specified in the Sumerian kings list, the early lists don't seem to be patriarchal. **For example, Tizqar (Gen.64) is stated to be a son of Zamug (Gen.64) and Zamug that of Barsal-nuna (Gen.64) but their cumulative reign years are only 27.41 years, so these three cannot be son-father-grandfather.** Similarly, others can be analyzed and put in the right generations. Etana (Gen.62, 2405 BCE) of Kish is the first verified king on the Kish list. It can be noticed that the city-states of Assur, Uruk, Lagash, Akshak, Ur, Isin and Akkad formed after the time of Etana. The city-state of Assur starts only with Ushpia (Gen.69, 2202 BCE) as the list of 15 rulers before Ushpia are said to be tent-dwellers. So, all the Mesopotamian civilizations most likely branched off from Kish. If this Assur list of 15 tent-dwellers be considered strictly patriarchal, Tudiya, the earliest known Assur tent-dweller, could be a contemporary of Jushur's grandfather. But Tudiya was more likely a contemporary of Jushur and Alulim in Gen.56 (2579 BCE), after the floods. These are generations at Kish before Mashda:

Gen	Year	Kish	Gen	Year	Kish
56	-2578	Jushur (20Y) [<i>"After the flood had swept over, and the kingship had descended from heaven, the kingship was in Kish."</i>] (c) Alulim	59	-2491	Kalibum+ (16Y) Kalumum+ (14Y)
57	-2549	Kullassina-bel+ (16Y) Nangishlishma+ (11.6Y)	60	-2462	Zuqaqip (15Y) Atab / A-ba (10Y)
58	-2520	En-tarah-ana+ (7Y) Babum+ (5Y) Puannum+ (14Y)	61	-2433	Mashda (14Y) (f) Atab Arwium (12Y)

Table 2.80
Kish Chronology #Gen. 54-69

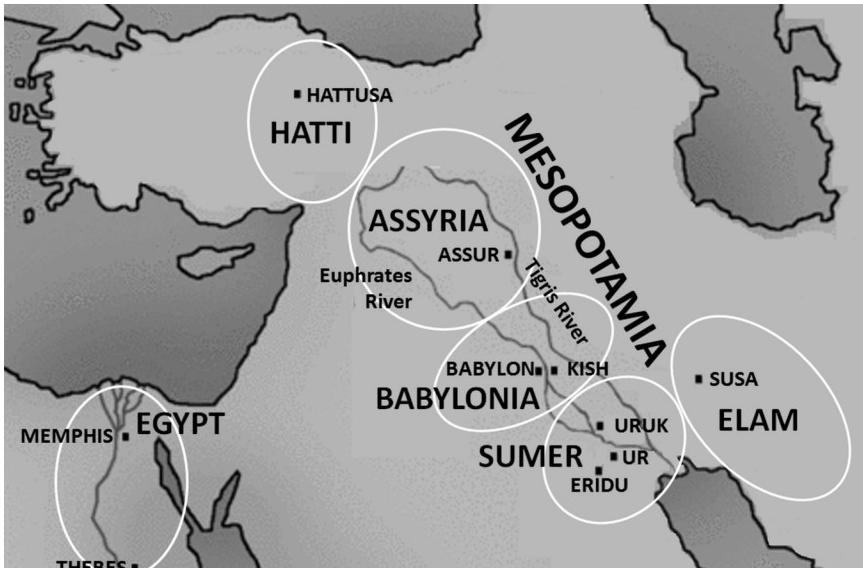


Figure 2.6
Map of Ancient Mesopotamia

Also, the wealthy land of Aratta, the residence of the Sumerian ‘goddess’ Inanna who transferred her allegiance to Enmerkar of Uruk/Unug, the land of Lapis Lazuli (a semi-precious blue stone), that is mentioned so numerously in the Sumerian literature¹⁵⁵ is none other than the ancient Indian kingdom of *Gandhāra* (modern-day Afghanistan). As mentioned in the *Matsya Purāṇa*¹⁵⁶, its original name was *Ārattā* and it was famous for its excellent breed of horses.

Enmerkar (Gen.65, 2318 BCE), Lugalbanda (Gen.65), his son Gilgamesh (Gen.66, 2289 BCE), all from Uruk/Unug, and Shulgi of Ur (Gen.67, 2260 BCE), they all have mentioned *Ārattā*.

¹⁵⁵ Electronic Text Corpus of Sumerian Literature (etcsl.orinst.ox.ac.uk)

¹⁵⁶ ख्यायते यस्य नामा स गन्धार विषयो महान् ।

आरद्ध देशाः तस्य तुरगा वाजिनां वराः ॥ MP 26.7

“Popularly named after him (son of Śaradvāna), is *Gandhāra*, great country, Of that *Ārattā* country of his, the horses are excellent for racing.”

3.5 Eridu, Bad-Tibira, Larag, Zimbir & Shuruppag

Gen	Year	Eridu	Bad-Tibira	Larag	Zimbir	Shuruppag
56	-2578	Alulim (28.8Y) (c) Jushur, of Kish	X	X	X	X
57	-2549	Alalngar (36Y)	X	X	X	X
58	-2520	X	En-men-lu-ana (43.2Y)	X	X	X
59	-2491	X	En-men-gal-ana (28.8Y)	X	X	X
60	-2462	X	Dumuzid (36Y) "the Shepherd"	X	X	X
61	-2433	X	X	En-sipad-zid-ana (28.8Y)	X	X
62	-2404	X	X	X	En-men-dur-ana (21Y)	X
63	-2375	X	X	X	X	Ubara-Tutu (18.6Y) (s) Utnapishtim

Table 2.81

Eridu, Bad-Tibira, Larag, Zimbir, Shuruppag #Gen. 56-63

In the Sumerian Kings List, it is stated for both, Alulim at Eridu and Jushur at Kish, that they started their reign after the floods had swept over and after they had descended from the mountains ("After the flood had swept over, and the kingship had descended from heaven, the kingship was in ..."). That makes Alulim and Jushur contemporaries. Putting Alulim in the same generation as Jushur, we list down the generations up to Ubara-Tutu, while following the transfer of kingship ("...and the kingship was taken to..."), and we arrive at the table given above. The reign years that are specified in terms of "Sars" seem to be a unit equal to 3.6 years¹⁵⁷. So, from Alulim (Gen.56, 2579 BCE) at Eridu to the floods that came in 19th year of Ubara-Tutu (Gen.63, 2376 BCE) at Shuruppag, about 66.75 Sars equal to 240.3 years were elapsed. Assuming Alulim started his reign in 2580 BCE, a year before his generation time, the floods in the times of Ubara-Tutu can be then placed in 2340 BCE (2580-240), a time that falls 7 years into the generation-time of Utnapishtim (Gen.64, 2347 BCE), the son of Ubara-Tutu.

Now, the Epic of Gilgamesh clearly records the conversation of Gilgamesh with an old Utnapishtim (Ziusudra in Babylonian) who had relocated to a different place nearer to the "gods"¹⁵⁸. As Gilgamesh existed in Gen.66, Utnapishtim, in Gen.64, was two

¹⁵⁷ This is also evident from the fact that total "Sars" from Alulim to Ubara-Tutu are 66.75 against 8 kings which gives us 8.34 Sars as average reign time per king. But as we know the average generation time to be 29/30 years, we get 1 Sar ~ 30/8.34 ~ 3.6 years.

¹⁵⁸ 199. "Then went Ea on board the ship,

- 200. *He took my hand and brought me forth,*
 - 201. *He brought forth my wife and made her kneel at my side;*
 - 202. *He turned us toward each other and stood between us; he blessed us:*
 - 203. *'In former times Utnapishtim was a man;*
 - 204. *Now let Utnapishtim and his wife be like gods-- even like us;*
 - 205. *Let Utnapishtim dwell afar off at the mouth of the rivers!'*
 - 206. *He took me and caused me to dwell afar off at the mouth of the rivers."*
- Utnapishtim to Gilgamesh, from a Babylonian Flood Narrative):
Archaeology and the Bible (George Aaron Barton, 1933)

generations his senior and of the age of grandfather of Gilgamesh. So, it seems that a 20-25 year old Gilgamesh must have met Utnapishtim when he was about 75-80 year old. This account is found in the Epic of Gilgamesh and the Eridu Genesis.

So, there were at least 3 floods in Mesopotamian region:

- 1) 2820 BCE (of the time of *Vaivasvat Manu* of India, 48C)
- 2) 2580 BCE (Jushur of Kish, Alulim of Eridu)
- 3) 2350 BCE (Ubara-Tutu & son Utnapishtim at Shuruppag)

Of these, the first one was a global level flood that is confirmed by the excavations at Ur (1922 CE) by Leonard Wooley that revealed an eight-foot layer of silt and clay, consistent with the sediment of the Euphrates, and that is dated to ~2800 BCE. The remaining two floods of 2580 BCE and 2350 BCE seem to be local floods caused by the two rivers of Euphrates and Tigris.

This concludes the Mesopotamian history, of which the Jushur of Kish and the Alulim of Eridu, co-aged contemporaries, are the oldest known rulers in Gen.56 (2579 BCE).

3.6 Chronology of Egypt

Fixing the complete chronology of Egypt is a daunting task for many reasons. Only few historical records exist for Egyptian kings when we compare their numbers with those of its neighboring civilizations of Mesopotamia (Assur/Babylonia etc). On top of that, the royal script of Egypt was logographic and only used the primitive hieroglyphics, making the task of decoding its historical timeline altogether more difficult. No proper lists of Egyptian kings have been maintained by the Egyptian kings themselves. While a few exist, they seem to state all dynasties in a sequential manner, when some of them are now known to have existed in parallel. Also, only few of these lists mention the genealogical

relationships between the successive kings, making impossible even a genealogical reconstruction like achieved earlier in this book in the case of Mesopotamian kings. While the *Aegyptiaca*, a Greek book of Egyptian priest Manetho (3rd cen. BCE), combined with the Abydos Kings List recovered from the tomb of Ramesses II, helps us to section the various names in different dynasties and group the dynasties in various periods, the absolute ruling places (city-states) of these dynasties within Egypt remain unclear.

No	Period	Dynasties	Time-Range
1	Early Period (Start: Narmer)	1, 2	~3101 BCE (~14 Gen)
2	Old Kingdom (Start: Djoser)	3, 4, 5, 6	~2695 BCE (~13 Gen)
3	First Intermediate Period (FIP)	7, 8, 9, 10	~2318 BCE (~08 Gen)
4	Middle Kingdom (End: Neferhotep I)	11, 12, 13	~2086 BCE (~07 Gen)
5	Second Intermediate Period (SIP)	14, 15, 16, 17	~1883 BCE (~10 Gen)
6	New Kingdom (Start: Ahmose I)	18, 19, 20	~1596-1100 BCE
7	Third Intermediate Period (TIP)	21, 22, 23, 24	~1100 -610 BCE
8	Late Period	25, 26	610-332 BCE
9	First Persian Period	27	332-30 BCE
10	Roman	28, 29, 30	30 BCE – 395 CE

Table 2.82
Revised Periods of Egyptian History

No reliable chronologies of the first five periods that represent the first 17 dynasties of Manetho's *Aegyptiaca* can be formulated for want of more information. For the most pharaohs here, the reign periods, the succession order and the genealogy are not clearly known. Nonetheless, there is one historical synchronism of Neferhotep I (near the end of 13th Dynasty), a senior contemporary of Zimri-Lim of Mari and Hammurabi¹⁵⁹ of Babylon (Gen.80, 1883

¹⁵⁹ Hammurabi destroyed the palace of Zimri-Lin, king of Mari, who had among his treasures a solid gold cup given to him on the occasion of his succession by Yantin, king of Byblos. An inscription from Yantin's 5th year was found with a cartouche of Neferhotep I next to it.

BCE), as indicated by a stela of governor of Byblos Yantinu. One unlikely synchronism is that of Pepi II of 6th dynasty (~2382 BCE), who is thought to be a contemporary of Sargon of Akkad (Gen.69, 2202 BCE). But these alone aren't of much help. Where the reign periods are known for some pharaohs, many seem to have ruled in quick succession for only 1-3 years each. Thus any current attempt at the chronological reconstruction of these early periods is premature in my opinion and needs more information to be successful. But the start of Early Period, with Narmer at its head, can be reasonably taken as 3101 BCE (Gen.38), 14 generations before Djoser (3rd dynasty) at the head of Old Kingdom period. The date of Djoser (2706 BCE) is based on a radiocarbon date of 2676 BCE (68% hpd) for him, incremented by me by 30 years.

Gen	Year	Egyptian Chronology – Early Period (Dynasty 1, 2)	
38	-3100	Narmer (n) united the tribes about Nile	Dynasty 1 (7 Gen.)
39	-3071	Aha / Hor-Aha (n) founded Egypt	
40	-3042	Djer	
41	-3013	Djet (w) Merneith	
42	-2984	Den	
43	-2955	Anedjib (gf) Djet Semerkhet+: (f) Den	
44	-2926	Qa'a	
45	-2897	Hotepsekhemwy	Dynasty 2 (7 Gen.)
46	-2868	Nebra	
47	-2839	Nynetjer (n) Global Floods: ~2820 BCE	
48	-2810	Senedj (20Y) (c) <i>Vaivasvat Manu</i>	
49	-2781	{Seth-Peribsen}	
50	-2752	{Sekhemib-Perenmaat}	
51	-2723	Khasekhemwy (18Y, 2724 BCE)	
52	-2694	Djoser (2706 BCE) (f) Khasekhemwy	Dynasty 3

Table 2.83
Early Period #Gen. 38-51

King/Queen	No. ^{14}C Dates in Models	Accession Dates (BCE)		Modeled HPD** Ranges			
		Shaw (18)	Hornung <i>et al.</i> (21)	68%		95%	
Old Kingdom							
Djoser	7	2667	2592	2676	2643	2691	2625
Sneferu	2	2613	2543	2634	2599	2649	2582
Khufu	0	2589	2509	2613	2577	2629	2558
New Kingdom							
Ahmose	0	1550	1539	1566	1552	1570	1544
Amenhotep I	0	1525	1514	1541	1527	1545	1519
Thutmose III	24	1479	1479	1494	1483	1498	1474
Amenhotep III	2	1390	1390	1404	1393	1408	1386

** HPD: Highest Posterior Density

Table 2.84
Radiocarbon Dates of Djoser and Ahmose

The radiocarbon dates shown above are provided by 10 researchers headed by C.B. Ramsey and M. Dee¹⁶⁰. As their 68% hpd value for Ahmose (1566) falls short of our value (1596) by 30 years, we correct their date of Djoser (2676) by 30 years to 2706 BCE. In a later paper¹⁶¹, they have also shared the radiocarbon dates of 1st Dynasty but these seem to be mutually inconsistent.

	Accession or Transition	Modeled HPD** Ranges (From-To)			
		68%		95%	
First Dynasty	Aha (foundation of state)	3111	3045	3218	3035
	Djer	3073	3036	3130	3021
	Djet	2989	2941	3005	2926
	Queen Merneith	2946	2916	2970	2910
	Den	2928	2911	2945	2904

Table 2.85
Radiocarbon Dates of Djer and Den

¹⁶⁰ Radiocarbon-Based Chronology for Dynastic Egypt, C.B. Ramsey et al., Science Mag, Vol. 328 (Jun 2010), p.1556

¹⁶¹ An absolute chronology for early Egypt using radiocarbon dating and Bayesian statistical modelling, M. Dee et al., Proc R Soc A, Vol. 469, Issue 2159 (Nov 2013)

Consider the (68% HPD) dates of Djer (3073) and Den (2928) which are separated by 145 years (3073-2928), too far apart to be real for the grandfather-grandson relationship between Djer and Den. This difference should have been only about 60 years (~2 Gen). Even if it be assumed that there was an additional generation gap, the difference would still come to be only about 90 years (3 Gen) and not 145 years. As can be seen from the Early Period table provided earlier, there were only 7 generations (203 years, 29x7) in Dynasty 1 of which 145 years would go only to two generations of Djer and his son Djjet if these radiocarbon dates of First Dynasty be taken as real. So, it's best to discard these early period radiocarbon dates as untrustworthy. Between the two radiocarbon dates of Djer and Djoser, that of Djoser is more reliable because the farther back in past we go, the more unreliable the radiocarbon dates become. So, the time of Djer and his grandfather Narmer is best calculated by a simple genealogical back-calculation from a somewhat reliable radiocarbon-based date of Djoser which is 2706 BCE (2676+30). As his father Khasekhemwy ruled for only 18 years, his date comes to 2724 BCE (2706+18), also the exact start of 51st time-generation. Placing Khasekhemwy in Gen.51 and back-calculating 13 generations before him, we get the time of Narmer as (Gen.38, 3101 BCE). So, it may be said that the Egyptian civilization started in 3100 BCE.

The key anchor of the chronology of the New Kingdom Period is **Nebmaatre Amenhotep III**, the son-in-law of Kurigalzu I of Babylonia, and also a contemporary of Tushratta of Mittani (Amarna Letters), whose daughter was married first to him and later to his son Akhenaten, and Ashur-Ubalit I of Assyria, both of whom belonged to Gen.95. Carefully tracing the genealogical relationships on both sides of Amenhotep III (Gen.95, 1448 BCE), as well as counting the known reign years, and adjusting for the Heliacal Risings of Sirius of Amenhotep I and Thutmose III, we are able to establish the Egyptian chronology. The New kingdom period, from Ahmose I (Gen.90, 1593 BCE) to Ramesses XI (Gen.106, 1129 BCE), covers the sequential dynasties 18, 19 & 20:

Gen	Year	(Y) Egyptian Chronology – New Kingdom Period		
90	-1592	Nebpehtire Ahmose I / Ahmosis I+ (25Y, 1596 BCE)		
91	-1563	Djeserkare Amenhotep I (21Y, 1571 BCE) (n) Heliacal Rising of Sirius, 3S09, 9 th (Exp.) year: (1562 BCE, 07.07.-1561 04:49:31 EET) Aakheperkare Thutmose I: (13Y, 1550 BCE) (n) son of Amenhotep I Aakheperenre Thutmose II / Thutmosis (14Y, 1537 BCE) (w) Maatkare Hatshepsut		
92	-1534	Maatkare Hatshepsut+ (20Y for Thutmose III, 1523 BCE) Menkheperre Thutmose III+ (n) ascended early		
93	-1505	Menkheperre Thutmose III+ (52Y, 1523 BCE) (n) old-age son of Thutmose II ? (n) Heliacal Rising of Sirius: 3S28 (III Shemu 28), 33 rd (Exp.) Year : (1490 BCE, 10.07.-1489 04:53:18 EET)		
94	-1476	Aakheperure Amenhotep II (25Y, 1471 BCE) Menkheperure Thutmose IV (9Y, 1446 BCE)		
95	-1447	Nebmaatre Amenhotep III+ (38Y, 1437 BCE) (c) Abraham of Bible (fil) Shuttarna II of Mitanni (c/fil) Tushratta of Mittani (Amarna Letters) (fil) Kurigalzu I of Babylon (c) Ashur-Ubalit I of Assyria	Abraham , of Bible (Gen.95, 1448 BCE)	
96	-1418	Akhenaten / Amenhotep IV (18Y, 1399 BCE) (fil) Tushratta of Mittanni (n) son Tutankhamen died in 18 th yr (n) Solar Ecl: Yr. 2 (01.03.-1398 14:26)	... (Abraham)	
97	-1389	Kheperkheperure Ay+ (4Y, 1381 BCE) (n) Vizier to Tutankhamen Horemheb+ (30Y, 1377 BCE)	Isaac (old-age son) (hb) Ishmael (Forefather of Prophet Mohammad)	
98	-1360	Menpehtire Ramesses I+ (2Y, 1347) Menmaatre Seti I (11Y, 1345 BCE)	Jacob / Israel	
99	-1331	Ramesses II (66Y, 1334 BCE) (n) fought the Battle of Kadesh in early years (c) Mursili II of Hittites (SE: 12.06.1312 BCE)	Judah (n) fathered a son in son's wife	Levi
100	-1302	... (continued under Ramesses II)	...	Kohath
101	-1273	Merenptah (10Y, 1268 BCE) Amenmesse+ (3Y) Userkheperure Seti II+ (6Y) Akhenre Merenptah Siptah+ (6Y) Tausret / Tawosret+ (1Y) Userkhaure Setnakhte+ (4Y, 1242 BCE) (n) The Pharaoh of Exodus, Exodus date: 1238 BCE	Pherez (f) Judah	Amram

Gen	Year	(Y) Egyptian Chronology – New Kingdom Period		
102	-1244	Ramesses III (30Y, 1238 BCE) (f) Setnakhte	Esrom	Moses
103	-1215	Ramesses IV (6Y, 1208 BCE) (b) Ramesses VI, Ramesses VIII	Aram (f) Esrom	
104	-1186	Ramesses V (f) Ramesses IV (n) fall of Troy 1183 BCE Ramesses VI+ Ramesses VII (f) Ramesses VI		
105	-1157	Ramesses IX+ (cousin of Ramesses V & VIII) Ramesses X+ (3-4 years, origin unknown)		
106	-1128	Ramesses XI+ (possibly the son of Ramesses X) (30Y)		

Table 2.86
New Kingdom Period #Gen. 90-106

Given next is the Third Intermediate Period (T.I.P.):

Gen	Year	Egypt Chronology – TIP (Third Intermediate Period)	
106	-1128	X	<High Priests of Amun @ Thebes> Herihor (6Y) Piankh+ (4Y)
107	-1099	<Dynasty 21> Nesbanebdjed I / Smendes I (26Y, ~1100 BCE) (w) Tentamun: (f) Ramesses XI Neferkare Heqawaset Amenemnisu+ (4Y, 1074 BCE)	Pinedjem I (38Y, ~1100 BCE)
108	-1070	Psusennes I (f) Pinedjem I (45Y, 1070 BCE)	Masaharta (9Y, 1062 BCE) (b) Djedkhonsuefankh+ (1Y, 1053 BCE) (b) Menkheperre+
109	-1041	Usermaatre Amenemope (9Y, 1025 BCE) Aakheperre Setepenre Osorkon+ (6Y, 1016 BCE)	Menkheperre+ (53Y, 1052 BCE)
110	-1012	Netjerikheperre-setpenamun Siamun-meryamun (19Y, 1010 BCE)	Nesbanebdjed II / Smendes II (2Y, 999 BCE) (f) Menkheperre (b) Pinedjem II+ (14Y, 997 BCE)
111	-983	Titkheperure Pasebakenniut II / Psusennes II (24Y, 991 BCE) (f) Pinedjem II	Pasebakhaennuit III / Psusennes III (33Y, 983 BCE)

Table 2.87
TIP (Dynasty 21) & High Priests of Amun #Gen. 106-111

It can be noticed that the T.I.P. started with Nesbanebdjed I (Smendes I) of dynasty 21 who was the son-in-law of Ramesses XI. Also, Herihor, the high priest of Amun, ruled from Thebes for 4 years during the later-half of Ramesses XI's reign. His successor Piankh ruled only 4 years. Given next are sequential dynasties 22 & 25 of the T.I.P. whose times have been back-calculated from **Psamtik I**, a contemporary of Ashur Banipal of Assyria (Gen.122, 665 BCE). Dynasty 23 had only 2 kings and existed elsewhere; dynasty 24 runs parallel to dynasty 22 towards its end.

Gen	Year	Egypt Chronology – TIP (Third Intermediate Period)	
110	-1012	<Dynasty 22> Hedjkheperre-setepenre Shoshenq I (22Y, 1011 BCE) (f) Nimlot A	
111	-983	Sekhemkheperre Osorkon I (35Y, 989 BCE)	
112	-954	Heqakheperre Shoshenq II+ (2Y, 954 BCE) Tutkheperre Shoshenq IIb+ (4Y, 952 BCE) (n) One of above two is the Shishak of Bible (c) Rehoboam of Bible (In 5 th year of Rehoboam, Shishak attacked Israel) Hedjkheperre Harsiese+ (20Y, 948 BCE) (n) High Priest	
113	-925	Takelot I+ (13Y, 928 BCE) (f) Osokorn I	
114	-896	Usermaatre-setepenamun Osorkon II (35Y, 915 BCE) (f) Takelot I	
115	-867	Usermaatre-setepenre Shoshenq III: (39Y, 880 BCE)	
116	-838	Shoshenq IV (13Y, 841) Usermaatre-setepenre Pami: (7Y, 828 BCE)	<Dynasty 24> Hedjkheperre-setpenre Takelot II (24Y) (gf) Osokorn II
117	-809	Aakheperre Shoshenq V (38Y, 821 BCE)	Usermaatre-setepenamun Pedubast+ (25Y) Usermaatre Shoshenq VI+ (6Y)
118	-780	Usermaatre Osorkon IV (20Y, 783 BCE)	Usermaatre-setepenamun Osorkon III (28Y) (f/gf) Takelot II
119	-751	<Dynasty 25> Usermaatre Piye (31Y, 763 BCE)	Usermaatre-setpenamun Takelot III (8Y) (b) Usermaatre-setpenamun Rudamun (3Y) Menkheperre Ini+ (n) at Thebes
120	-722	Neferkare Shabaka (15Y, 732 BCE) (b) Djedkaure Shebitku+ (16Y, 717 BCE) (ec) Sargon II / Assyria	
121	-693	Khuinefertemre Taharqa (26Y, 701 BCE)	
122	-664	Bakare Tantamani (11Y, 675 BCE) Psamtik I+ (664 BCE) (c) Ashur-Banipal of Assyria	

Table 2.88

Third Intermediate Period (Dynasties 22, 24, 25) #Gen. 110-122

It can be noticed that two Shoshenqs (Heqakheperre Shoshenq II and Tutkheperre Shoshenq II.b) fall in Gen.112 (955 BCE) wherein Rehoboam of Bible already exists. So, one of these two Shoshenqs is the Shishak of Bible who destroyed Israel in the 5th year of Rehoboam. Also, Shoshenq I (Gen.110, 1013 BCE) who is generally considered to be the Shishak, as first proposed by Jean-Francois Champollion, exists two generations before Rehoboam. It can also be noticed that Djedkaure Shebitku (717 BCE; Gen.120, 723 BCE) also falls near the end of Gen.119 where Sargon II of Assyria (Gen.119, 752 BCE) already exists. That Shebitku was a late contemporary of Sargon II and that he turned over the fugitive king Iamani to Sargon II in 15th year of Sargon II is known by the Inscription¹⁶² of Tang-i Var in Iran left by Sargon II who must have assumed power in 732 BCE (717+15) or later.

Now, from the times of Amenhotep I (Gen.91, 1564 BCE) and Thutmose III (Gen.92/93, 1535/1506 BCE), some astronomical events such as the Heliacal Risings and Settings of Sirius, the brightest star, are recorded against the Egyptian dates, all in the Egyptian seasonal month of Shemu:

King / Place	Heliacal Risings (HR-) of Sirius (S) & Venus (V); Heliacal Settings (HS-) of Sirius (S)		
Amenhotep I @ Thebes	HR-S: 3S09	3S09	Yr. 09
Thutmose III @ Elephantine	HR-S & HR-V	3S[27]	Yr. 09
	HS-S	1S29	Yr. 33
	HR-S	3S28	Yr. 33

Table 2.89
Heliacal Risings of Sirius (Greek: Sothis, Egyptian: Sopdet)

¹⁶² "(19) I (scil. Sargon) plundered the city of Ashdod, Iamani, its king, feared [my weapons] and...He fled to the region of the land of Meluhha and lived (there) stealthfully (literally: like a thief). (20) Shapataku' (Shebitku) king of the land of Meluhha, heard of the mig[ht] of the gods Ashur, Nabu (and) Marduk which I had [demonstrated] over all lands...(21) He put (Iamani) in manacles and handcuffs...he had him brought captive into my presence." – Sargon II

Although the HR-S event at Egypt is known to occur annually in Egypt about the month of July, neither the starting points of the Egyptian months, nor their nature (solar or lunar) is known for certain. It is known though that they were broadly divided into 3 seasons (Akhet, Peret and Shemu) of four months each and that the season of Akhet was related to annual inundation of Nile in the summers. So, before proceeding any further, we first need to gain an understanding of the Egyptian calendar to be able to put a number to an Egyptian date. Presently, it is assumed that the Egyptian calendar was solar in nature. But, as all the ancient calendars were lunar in nature, there is no good reason to believe that the Egyptian calendar was solar. The solar calendar was first established in Babylonia only from the time of Chaldeans and introduced elsewhere later. Moreover, as already shown, the Mesopotamian calendar, as far back as Shulgi (Gen.67, 2260 BCE) of Uruk, is essentially the same as the Vedic calendar. So, it can be inferred that the Egyptians, just like their Mesopotamian neighbors, too used the Vedic Lunar calendar:

No.	Vedic Month	Mesopot. Month	Eng. Month	Egyptian Seasonal Month	Egyptian Religious Month (Yes)	Egyptian Religious Month (No)
1	<i>Māgha</i>	Shabatu	~Jan	1P	Mehir	Paopi
2	<i>Phālguna</i>	Adaru	~Feb	2P	Pamenotep	Hathor
3	<i>Caitra</i>	Nisanu	~Mar	3P	Parmuti	Koyak
4	<i>Vaisākha</i>	Ayaru	~Apr	4P	Pahons	Teobi
5	<i>Jyeṣṭha</i>	Simanu	~May	1S	Paoni	Mehir
6	<i>Āṣāḍha</i>	Dumuzu	~Jun	2S	Epipi	Pamenotep
7	<i>Śrāvāṇa</i>	Abu	~Jul	3S	Mesore	Parmuti
8	<i>Bhādrapada</i>	Ululu	~Aug	4S	Thoth	Pahons
9	<i>Aśvin</i>	Tashritu	~Sep	1A	Paopi	Paoni
10	<i>Kārtika</i>	Arahsamnu	~Oct	2A	Hathor	Epipi
11	<i>Mārgaśīrṣa</i>	Kislimu	~Nov	3A	Koyak	Mesore
12	<i>Pauṣa</i>	Tabetu	~Dec	4A	Teobi	Thoth

Note: 1P = I Peret, 2S = II Shemu, 3A = III Akhet; 3S29 = 29th day of III Shemu

Table 2.90
Egyptian Calendar: Possibilities

As the most HR-S (Heliacal risings of Sirius) events are noted to have taken place in the seasonal month of 3S (III Shemu), the month of 3S can be fixed against the month of July in the Gregorian calendar where the annual HR-S event is known to occur. Thus we obtain the order of seasonal months as (1P...4A), in equivalence with Vedic/Mesopotamian months, and notice that the month of 1A (I Akhet) lies in September at the end of summers in which the waters of annual inundation of Nile¹⁶³ started receding and by end of which the fields were ready to be sown at the start of 2A (II Akhet). This is contrary to the present general understanding that the annual inundation started with the season of Akhet itself. This understanding is clearly illogical because the annual inundation, starting in May, must last the entire summers (4 months of May, June, July & August) and, in which case, the HR-S, being tied to July, could never have occurred in the season of Shemu the last month of which would lie somewhere in April. So, the only logical conclusion is that the month of 1A (I Akhet) was a month by the middle/end of which the flood waters were receded and the fields were fit to be sown. It can also be concluded reasonably well that the HR-S could have occurred in the month of 1A, at its start, only rarely but never in the month of 2P as the month of 2P lies far off from July (~3S).

It is also known that the Egyptians seasonal months (1P to 4A) also had religious names but their exact correspondence to the seasonal months is not known. If we are to read the Aramaic Sandstone Stele Inscription¹⁶⁴ found in Aswan, the Mesopotamian

¹⁶³ In present times, the annual inundation of Nile in summers doesn't occur due to the reservoir dams constructed on the Nile.

¹⁶⁴ First published 1903; This Sandstone Stele is now in Museum of Egyptian Antiquities at Cairo, lines 2-5 read as follows:

"*[Vidarnag], commander of the garrison
of Syene, built this brzmdn' in the
month of Siwan, that is Mehir, in the
seventh year of Artaxerxes the King. By
the grace of God, welfare.*"

month of Siwan (Simanu) corresponded to the Egyptian month of Mehir, in which case the Egyptian month of Thoth would come in December, at the end of season of Akhet. But it is well-known that when Egyptian calendar was enforced by law about 25-22 BCE, the first date of Thoth fell about the end of Aug 29, which tells us that the month of Thoth would correspond to August or September. As the original position of Thoth couldn't have been at a great variance with this, either the Aramaic Inscription or its translation is wrong and the Egyptian month of Mehir can not correspond with the Mesopotamian month of Siwan (Simanu), perhaps it was meant to be Shabatu. Also, as the lunar months are oscillatory, it's okay for them to sometimes fall a month or two away from their corresponding mean positions in the solar calendar. So, if Thoth is taken to correspond with August itself, the last two months of Koyak and Teobi also have a phonetic match with the last two Mesopotamian months of Kislimu and Tabetu respectively. Thus, it can be concluded fairly well that the Egyptians initially counted the year from 1P-Mehir (Shabatu, *Māgha*, ~Jan), as shown in the following table:

No.	Vedic Month	Egyptian (Seasonal-Religious) Month	Eng. Month	Mesopotamian Month
1	<i>Māgha</i>	1P-Mehir	~Jan	Shabatu
2	<i>Phālguna</i>	2P-Pamenotep	~Feb	Adaru
3	<i>Caitra</i>	3P-Parmuti	~Mar	Nisanu
4	<i>Vaisākha</i>	4P-Pahons	~Apr	Ayaru
5	<i>Jyeṣṭha</i>	1S-Paoni	~May	Simanu
6	<i>Āṣāḍha</i>	2S-Epipi	~Jun	Dumuzu
7	<i>Śrāvāṇa</i>	3S-Mesore	~Jul	Abu
8	<i>Bhādrapada</i>	4S-Thoth	~Aug	Ululu
9	<i>Aśvin</i>	1A-Paopi	~Sep	Tashritu
10	<i>Kārtika</i>	2A-Hathor	~Oct	Arahsamnu
11	<i>Mārgaśīrṣa</i>	3A-Koyak	~Nov	Kislimu
12	<i>Pauṣa</i>	4A-Teobi	~Dec	Tabetu

Table 2.91
Final Egyptian Calendar

It was only after the Egyptians decided to earmark the event of annual inundation of Nile that they started counting the year from the month of 1A-Paopi (Tashritu, *Aśvin*, ~Sep). The theory of existence of double calendars, one solar for civil and one lunar for religious purposes, is incorrect and only stems from the lack of knowledge of mechanism of ancient lunar calendar. Thus, the ancient Egyptian calendar can be drawn up by simply computing the corresponding Vedic calendar and reading the month names interchangeably, as given in the table above.

The calendar mechanism now revealed, the recorded Egyptian dates for the Helical rising/setting of Sirius & Venus, as read against a Vedic Lunar calendar, are in complete agreement with the historical placements of Amenhotep I (Gen.91, 1577 BCE) and Thutmose III (Gen.92/93, 1535/1506 BCE) arrived at by a combination of historical synchronism and genealogy. It's known that the cumulative reign years from Amenhotep I up to Hatshepsut / Thutmose III were 48 (21+13+14): Amenhotep (21 years), Thutmose I (13 years) and Thutmose II (14 years). This can be checked to be true from the two tables below as there are 48 (expired) years from the first year of Amenhotep I (1571 BCE) to the first year of Hatshepsut / Thutmose III (1523 BCE):

Amenhotep I @ Thebes (Gen.91, 1577 BCE): Ruled 21 years, starting 1571 BCE		
HR-S: 3S09 (III Shemu 09), 9th (expired) year of reign: 1562 BCE		
No.	Sunrise Time (EET)	Alt. Diff. of Sirius-Sun
1	30.06.-1563 04:48:17	4°
2	19.06.-1562 04:48:22	353°
3	07.07.-1561 04:49:31	10° (9th Yr. of Reign, Exp.)
4	26.06.-1560 04:48:00	0°
5	15.06.-1559 04:49:05	349°

Table 2.92
Heliacal Rising of Sirius during reign of Amenhotep I

Thutmose III @ Elephantine (Gen.92/93, 1535/1506 BCE): Ruled 52 years, reign started in 1523 BCE as a child. His (expired) 33 th regnal year falls in 1490 BCE (1523-33). His first 20 regnal years were governed by his mother Hatshepsut.				
(a) HR-S: 3S28 (III Shemu 28), 33th (expired) year of reign: 1490 BCE				
No.	Sunrise Time (EET)	Alt. Diff. of Sirius-Sun		
1	01.08.-1491 05:03:35	37°		
2	21.07.-1490 04:57:45	26°		
3	10.07.-1489 04:53:18	15° (33rd Yr. of Reign, Exp.)		
4	28.07.-1488 05:01:32	34°		
(b) HR-S & HR-V (First Event Uncertain, second listed by me)				
No.	Exp. Year / Date	Sunrise Time (EET)	Alt. Diff. of Sirius-Sun**	Alt. Diff. of Venus-Sun**
1	09/3S27: 1514 BCE	04.08.-1513 05:05	40°	40°
2	12/3S01: 1511 BCE	06.07.-1510 04:52	11°	15°
** Alt. Diff. should be 11-13° for first visibility of a star during the Heliacal Rising with the star 2-4° above the horizon and the Sun 8-9° below it.				

Table 2.93

Heliacal Rising of Sirius during the reign of Thutmose III

So, the time of start of Early Period and the chronology of New Kingdom Period and the Third Intermediate Period, up to Ashur Banipal of Assyria (Gen.122, 665 BCE), is thus well-settled.

4. Conclusion

Now that all ancient civilizations have been analyzed, the timeline of World History can be finally revised as follows:

1. **Vedic India (*Svayambhuva Manu*): 3400 BCE**
2. **Indus Valley: 3300 BCE**
3. **Egypt (Narmer): 3100 BCE**
4. **Mesopotamia (Alulim at Eridu, Jushur at Kish): 2580 BCE**
5. **Hebrews of Bible (Shem, Abraham): 1740 BCE, 1450 BCE**

Chapter 3

Mahābhārata

War: Dec, 827 BCE



The *Pāṇḍavā* and *Kṛṣṇa* speak to old warrior *Bhīṣma* (on the Arrowbed)

1. Introduction

The *Mahābhārata* is a historical epic of 100,000 metered verses, originally composed by the great sage *Vedavyāsa* and expanded by his disciples, which recounts the detailed history of the *Bhāratā/Kuru*¹⁶⁵ and a great war known as the *Mahābhārata* war that was fought between 2 *Bhāratā/Kuru* families both of which laid claim to the throne of *Kuru* kingdom at *Hastināpura* on the western bank of river *Gangā*. *Vedavyāsa* started composing the *Mahābhārata* in the very first *Samvatsara* of the 28th *Kali-Yuga* that started on Jan 27, 826 BCE and completed it within three years.

पुण्योऽयं इतिहासाख्यः पवित्रं चेदमुत्तमम् ।
 कृष्णेन मुनिना विप्रं निर्मितं सत्यवादिना ॥ MB 18.5.35
 सर्वज्ञेन विधिज्ञेन धर्मज्ञानवता सता ।
 अतीन्द्रियेण शुचिना तपसा भावितात्मना ॥ MB 18.5.36
 ऐश्वर्ये वर्तता चैव साङ्ख्ययोगवता तथा ।
 नैकतन्त्रं विबुद्धेन दृष्ट्वा दिव्येन चक्षुषा ॥ MB 18.5.37
 त्रिभिः वर्षैः महत्पुण्यं कृष्णद्वैपायनः प्रभुः ।
 अखिलं भारतं चेदं चकार भगवान्मुनिः ॥ MB 18.5.48

*Sacred is this history said to be, pure it is and is the best,
 Kṛṣṇa Muni (Vedavyāsa) composed it, (who is) the ever speaker of truth.
 The knower of everything, of all procedures and all dharma (duties),
 Of extra-ordinary purity, and steeped in austerities, is his soul.
 Turning to powers, (gained) while (mind is) united in Sāṃkhya Yoga,
 Not depending on any one source, the wise man has (also) known it (all)
 through the divine Yogic-insight.
 In three years, this great and good work, (that is composed by) the Kṛṣṇa
 Dvaipāyana (Vedavyāsa),
 Complete Bharata it is, as told by the godly sage.*

¹⁶⁵ Descendents of king *Bharata* of Lunar race that, later on, also came to be known as the *Kurus* from after the time of king *Kuru*.

Woven around this story of struggle for the kingly inheritance, *Mahābhārata* also sheds light on many finer aspects like the true *dharma*, the purpose of life and the best way to achieve it, the morality and the immorality, the duty and the non-duty, the right and the wrong etc. In fact, the entire history of the *Ārya* race is interwoven within the *Mahābhārata* through many sub-stories at the right places, where it seems to digress for few chapters each.

The two aforesaid royal claimants to the throne of *Kuru* kingdom were the *Pāñdavā*, the sons of *Pāndu*, led by *Yudhiṣṭhīra* and the *Kauravā* who were the sons of *Dhṛtarāṣṭra*, the blind elder brother of *Pāndu*, led by *Duryodhana*. *Dhṛtarāṣṭra* and *Pāndu*, the posthumous sons of king *Vicitravīrya* begotten on his wives by the sage *Vedavyāsa* under a *Ārya* practice known as the *Niyoga*, were real brothers with *Dhṛtarāṣṭra* being elder to *Pāndu*. But as *Dhṛtarāṣṭra* was born blind, he couldn't be made the king as per the *Ārya* code, even though he was elder. So, *Pāndu* was made the king instead. During a game hunt in the woods, the very young, and newly married, king *Pāndu* mistakenly killed a sage and his wife, who are said to be mating taking the forms of deer. For this, *Pāndu* received a curse from the dying sage couple that he shall die instantly if he should ever try to engage in an act of copulation. Since now *Pāndu* couldn't engage in copulation without inviting death, he left the kingdom with his two wives to engage in austerities in the woods to beget progeny with godly boons. Meanwhile, *Dhṛtarāṣṭra* was appointed the caretaker king till the time *Pāndu* or his heir returns, with which event started the entire problem. In the woods, *Pāndu*'s elder wife *Kuntī*, under instruction from her husband, begot 3 children from the gods using a mantra taught to her by sage *Durvāsa*: *Yudhiṣṭhīra* from the god of *Dharma*, *Bhīma* from the god of wind, and *Arjuna* from *Indra*, the chief of gods¹⁶⁶.

¹⁶⁶ *Kuntī* was the daughter of *Śurasena*, the grand-father of *Kṛṣṇa*, who gave her to his childless friend king *Kuntībhoja* for adoption. In her adolescence, due to her selfless service to the sage *Durvāsa*, *Kuntī* was

When the news of *Kuntī* giving birth to *Yudhiṣṭhīra*, the first *Pāṇḍava*, travelled to *Hastināpura*, *Gāndhārī*, the long-pregnant wife of *Dhṛitarāṣṭra*, beat her own belly out of frustration which terminated her long pregnancy of two years. Dejected, *Gāndhārī* ordered the palace maids for the aborted lump of flesh to be thrown away. At this moment, the great sage *Vedavyāsa*, who had earlier given *Gāndhārī* a boon of 100 sons, arrived on the scene and told *Gāndhārī* that even a simple blessing of his doesn't go waste, what to say of a boon bestowed by him. *Vedavyāsa* divided the lump in 101 sections to be stored in big pitchers full of *Ghee* (clarified butter), performed a ceremony to the gods and instructed for the **sealed pitchers to be stored away for another two years¹⁶⁷**. Two years later, *Duryodhana*, was extracted from the first opened pitcher, on the same day when the birth of *Bhīma*, the

taught a mantra by him that could force any god to appear before her and do her bidding. A few days later, while looking at the rising Sun through the window, she grew desirous of the Sun god and thought to test the power of her mantra. When thus invoked, the Sun god materialized in an instant and asked *Kuntī* to approach him, putting her in a total fright. But *Kuntī* politely asked him to return, Sun god grew angry at this and told her that the visit of a mantra invoked god can't go in vain and if she doesn't surrender herself to him, he would reduce both her and the sage, who taught her the mantra, to ashes. Since *Kuntī* still implored him only to return, Sun god assured her that her chastity and virginity will remain intact and unsoled by his union with her. She ultimately gave in and surrendered herself to the Sun god who embraced her. A few months later, she secretly gave birth to *Karṇa*, set him up in a box and abandoned the box in the river. *Karṇa* was subsequently rescued and brought up by a *Sūta* (chariot driver), a class which was the result of intercourse of a *Kṣatriya* male with a *Brahmin* female and were thought to be good only for chariot driving and recounting the history. Since a child born to an unmarried girl was the property and responsibility of her first husband as per the *Ārya* code, *Karṇa* was thus the first son of *Pāṇdu* and the eldest of *Pandva* brothers. The secret of his birth unknown to him, *Karṇa* became the best friend of *Duryodhaya* and, by this association, the arch-enemy of his own brothers, the *Pāṇḍavā*.

¹⁶⁷ So, both *Bhīma* and *Duryodhana* were 2 years younger to *Yudhiṣṭhīra*.

arch-rival of *Duryodhana* and the second *Pāñdava*, took place. From the other remaining pitchers, 99 boys and 1 girl were extracted at the rate of one child per day.

After *Kuntī* had given birth to her 3 children, *Pāndu* requested her to also use the mantra for her co-wife *Mādrī*, who invoked the twin gods *Aśvin*, and begot the twins *Nakula* and *Sahadeva*. These 5 brothers (*Yudhiṣṭhīra*, *Bhīma*, *Arjuna*, *Nakula* & *Sahadeva*), the sons of *Pāñdu*, were known as the *Pāñdavā*. One day in the woods, *Arjuna* had just turned 14 years old, it was the day of his birth *Nakṣatra* (*Uttarā Phalgunī*) and the Brahmins were performing the *Svastivācana* for him. On this very day, his father *Pāndu* was besotted by the beauty of his younger wife *Mādrī* and, forgetting all about the deadly curse under the influence of his sexual desire fuelled by a charming spring season, took her at a little distance from their forest dwelling, with his mind set on sex. Within no time, *Pāndu* turned up dead, as was the curse set upon him. *Mādrī* cried out loudly to *Kuntī*, asking her to come alone to witness what had happened. A little later, *Kuntī*, being the elder queen, wanted to ascend the pyre of *Pāndu* as was the *Ārya* custom for the royals but it was *Mādrī* who did so. *Kuntī* and the 5 *Pāñdavā* were brought by the forest sages to the palace of *Hastināpura*. Here, *Bhiṣma* got *Kṛpācārya*, and subsequently *Dronācārya*, to impart military training to all the sons of *Pāndu* and *Dhṛtarāṣṭra*.

As *Yudhiṣṭhīra* was the eldest known son of *Pāndu*, and hence the rightful heir to the throne, he was made the crown-prince by *Dhṛtarāṣṭra* on completion of the military training of all princes, even though quite unwillingly, under the fear of public disrepute. *Duryodhana*, the eldest son of blind *Dhṛtarāṣṭra*, saw this as a transgression of his right to throne since the *Pāñdavā* were out of the picture for quite long and he had grown accustomed to thinking of himself as the next king. Here began a long and treacherous tale of *Duryodhana* always trying to dislodge the *Pāñdava* brothers from the kingdom in one way or other and these events finally culminated in a Great War.

This Great War, now known as the *Mahā-Bhārata*, in which almost all the kingdoms of Indian subcontinent aligned with one of the two sides, lasted a full 18 days. All the armies on both sides, that of the *Kauravā* and of the *Pāñdavā*, perished in this war in which the *Pāñdavā* finally emerging victorious with the clever help of their cousin *Kṛṣṇa*, a mighty warrior and a great strategist. Only the 5 *Pāñdava* brothers and a few other people made out of this war alive. All the sons of *Pāñdavā* and *Kauravā* also perished in the war, the lineage of *Pāñdavā* carried on through *Parīkṣit*, the grandson of *Arjuna* and the son of *Abhimanyu*, who was in the womb of his mother *Uttarā* when the war took place. A 16-year old *Parīkṣit* was crowned the king in 810 BCE by 86-year old *Yudhiṣṭhīra*, in the 18th year of war that started on Dec 10, 827 BCE.

2. Previous Dating Attempts

Many scholars, mostly academicians, have published papers and books on the dating of the *Mahābhārata* war on the basis of some planetary-position verses of the *Mahābhārata*. They have assigned vastly varying dates to the *Mahābhārata* war:

No.	Scholar	Dating	Chief Reliance
1	F.E. Pargiter	950 BCE	Reign Years (548 yrs. before 402 BCE)
2	P.R. Sarkar	1298 BCE	Likely the Arch. Excavations at Delhi
3	R.N. Iyengar	1478 BCE	Eclipse pairs and Saturn-Jupiter conjunctions
4	S. Balakrishna	2559 BCE	<i>Kali-Yuga</i> of <i>Vṛddha Garga</i> (2448 BCE); Lunar Eclipses
5	N. Achar	3067 BCE	<i>Kali-Yuga</i> of <i>Āryabhaṭṭa</i> (3102 BCE)
6	P.V. Holay	3143 BCE	<i>Kali-Yuga</i> of <i>Āryabhaṭṭa</i> (3102 BCE)
7	P.V. Vartak	5561 BCE	Planetary Positions

Table 3.1
Previous Dating Attempts of *Mahābhārata*

However, on examination of works of these scholars, it becomes clear that none of them has factored in the known archaeological facts and the genealogy. They have instead chosen to advocate random dates based mostly on their personal and subjective interpretation of the planetary-position verses of *Mahābhārata*. A theory common to works of most of them is that of assumed retrogression of planet Mars in the war year which presumes the *Samskr̥t* word “*Vakram*” (वक्रम्) to only mean “Retrograde”. But, as will be shown in the sections ahead, the word *Vakram* in the times of *Mahābhārata* primarily meant “slant”, which is also its first and most natural meaning, and only secondarily it meant “behind” (anti-clockwise). Interpretation of word *Vakram* as “retrograde” is a much later development, likely from the *Siddhānta* period, under the influence of Greek astronomy. Almost all these scholars have completely ignored the path-breaking archaeological findings from the *Hastināpura* site that were established by the A.S.I. in 1951-1952 and that are detailed ahead. It should have been thought by them whether the likely subjective interpretation of planetary positions is more important than the objective truths manifest in form of irrefutable archaeological evidence. A few odd scholars who have tried to factor in these archaeological findings have however dated the *Mahābhārata* war casually between 12-9 century BCE, without establishing any conclusive links.

Another researcher, a *Nilesh Oak*, supports the *Mahābhārata* dating of Dr. P.V. Vartak by a sub-theory of his that he calls the “Epoch of Arundhatī”. In his book “*The Mystery of Arundhatī*”, he dates the *Mahābhārata* war to 5561 BCE based only on a single verse, while to the complete exclusion of everything else:

या वैषा विश्वता राजं द्वैलोक्ये साध्यसम्मता ।
अरुन्धती तयाप्येष वशिष्ठः पृष्ठतः कृतः ॥ MB 6.2.31

This (the lady Arundhatī), O King, (who is) known and renowned in the three-worlds for her virtuosity,

The Arundhatī (the star Alcor, named after her), looks to have taken the Vasiṣṭha (the star Mizar, named after her husband) on its back.

Unfortunately for him, the foundation of his entire theory is formed of an interpretation of the word पृष्ठतः (*Pṛṣṭhatā*) as solely meaning “*behind*”, the primary meaning of which is “*on the back of / on the top of*” and not “*behind*”. This becomes quite clear from the *Mahābhārata* text, wherein this word occurs about 296 times. How can a conclusive theory ever be formed based on only one possibility without sufficiently disproving the other possibilities or even acknowledging them? He wrongly assumes that the word पृष्ठतः of the above-given verse only means “*behind*”, while completely ignoring its primary meaning of “*on the back of / on the top of*”. Thus, he fancifully concludes that the verse means that *Arundhatī* (star Alcor) has left behind *Vasiṣṭha* (star Mizar) while what is really being stated is that *Arundhatī* was located right under the star *Vasiṣṭha* as if it was carrying it on its back¹⁶⁸.

Now, the Indian scholars who date the *Mahābhārata* war at 3102 BCE and beyond do so in assuming the *Kali-Yuga* to have begun in 3102 BCE. But it's already been shown that this *Kali-Yuga* theory, of the *Kali-Yuga* beginning in 3102 BCE, was that of Āryabhaṭṭa of *Pāṭaliputra* formulated by him only in 499 CE. Earlier, in 252 CE, the Vṛddha Garga of Ujjain had also formulated a *Kali-Yuga* theory based on the *Saptarṣi* cycle of 2700 years which put the beginning of his *Kali-Yuga* in 2448 BCE (2448+252=2700). Both these theories are factually wrong as a *Kali-Yuga* is only of 12 years. Also, irrespective of its actual date, any dating of the *Mahābhārata* war beyond 2000 BCE is clearly ill-conceived as evident from the singular fact that the river *Sarasvatī*, mentioned in *Mahābhārata*

¹⁶⁸ It will be shown ahead that the war was fought in Dec, 827 BCE. The *Arundhatī-Vasiṣṭha* observation was made about Oct 30, 827 BCE, when *Veda Vyāsa* observed the rising *Saptarṣi*, of which *Arundhatī-Vasiṣṭha* are a part. It can be checked with Swiss Ephemeris that, on Oct 30, 827 BCE at 05:00:00 IST at *Hastināpura*, the position (Altitude, Azimuth) of *Arundhatī* (Alcor) was (29.8633°, 208.8994°) and that of *Vasiṣṭha* (Mizar) was (30.0483°, 208.9735°). Clearly, *Arundhatī* lay at the bottom-left of *Vasiṣṭha*; they were visible at ~61° NE [90-(209-180)], at ~30° altitude.

itself to have disappeared at most places, is now conclusively concluded to have started drying up from about 2000 BCE to 1750 BCE by a study of its delta basin. Thus the river *Sarasvatī* would have been in full flow before ~2000 BCE, as it is also mentioned in the *Vedā* as a mighty river flowing to the western sea. So, to place the *Mahābhārata* war at any date beyond 2000 BCE would not be in conformity with the facts mentioned in the *Mahābhārata* text itself:

दृश्यादृश्या च भवति तत्र तत्र सरस्वती ।
एता दिव्याः सप्तगङ्गास्त्रिषु लोकेषु विश्रुताः ॥ MB 6.6.50

*It becomes visible, then invisible, here and there, that Sarasvatī,
It is one of seven divine rivers, so is known in the three worlds.*

ततो विनशनं राजन् जगामाथ हलायुधः ।
शूद्राभीरान् प्रति द्वेषाद् यत्र नष्टा सरस्वती ॥ MB 9.37.1
तस्मात् तु कृष्णयो नित्यं प्राहुर्विनशनेति च ।

*Then, to Vinaśana, O King, went the Plough-Weapon bearer (Balarāma),
(Where) not liking the Śūdrā and Abhīrā, Sarasvatī has disappeared.
Therefore the sages always call it (that pilgrimage) the Vinaśana.*

In a presentation titled “*Mahābhārata Historicity*”, Prof. B.B. Lal, the A.S.I. director who excavated the *Hastināpura* site in 1951 CE, has himself dated the *Mahābhārata* war to ~860 BCE and has commented thus on the *Mahābhārata* datings before 2000 BCE:

“My difficulty in accepting this date (3102 BCE, or beyond) is that around 3102 BCE (nor even for another 1000 years to come) none of the sites associated with the Mahābhārata story was in existence – be it Hastināpura or Indraprastha or Mathura, as established by the excavations at these sites. How can then we enact the Mahābhārata story without these sites having been there? Can we?”

So, any proposed *Mahābhārata* date has to pass all the crucial tests (Archaeology, Genealogy, Linguistics, the *Mahā-Yugā* cycles) simultaneously and that too very clearly, consistently and unambiguously, for it to be readily accepted.

3. Archaeological Dating

In 1951-52, the A.S.I. (*Archaeological Survey of India*), at the initiative of its director general Prof. B.B. Lal, excavated many of the sites related to *Mahābhārata*, with an interest in ascertaining the veracity of the *Mahābhārata* war. During these excavations, 3-4 major periods of occupation were found at the site of *Hastināpura*, the erstwhile capital of the *Kuru* kingdom. Of these periods, some ***Painted Grey Ware (PSG)*** from period II (11th – 8th Century BCE), which constituted of pottery and other artifacts, was discovered in a flooding zone that was radiocarbon dated to 8th century BCE:

"At Hastināpura, iron slag and ore were found in the uppermost layers of Period II in association with the Painted Grey Ware¹. This P.G. Ware occupation began at the site early in the 11th century BCE, and ended owing to floods in the beginning of the 8th century BCE²" – Prof. B.B. Lal, A.S.I.

¹ Ancient India, Nos. 10 and 11, p. 13; No. 9, p. 95

² Ancient India, No. 9, p. 96; nos. 10 and 11, p. 23

As we will notice ahead, this radiocarbon dating (~800 BCE, beginning of 8th century BCE) of the flooding zone found at the *Hastināpura* site is the most important indicator of the exact period of *Mahābhārata* war. As the radiocarbon dates of 1950s were uncalibrated, this date of ~800 BCE may be off by a century or two. Also, the organic materials found in the flooding zone may have pre-existed for 50-70 years prior to the flooding. But, by and large, this uncalibrated radiocarbon date can be taken to be correct to at least two centuries. So, the time of *Hastināpura* flooding was 800 ± 200 BCE: a time range of [1000 BCE, 600 BCE].

Now, this flooding of *Hastināpura* by river *Gangā* and its subsequent desertion is mentioned in the *Purāṇā* as having occurred in the early times of 7th king from after *Yudhiṣṭhīra* (***Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka, Aśvamedhadatta, Adhisīma Kṛṣṇa, and Nicakru / Nicakṣu***):

योऽयं साम्प्रतमवनीपतिः परीक्षितस्यापि जनमेजय-श्रुतसेनोग्रसेन-
 भीमसेनश्वत्वारः पुत्राः भविष्यन्ति ॥ VP 4.21.2
 जनमेजयस्यापि शतानीको भविष्यति ॥ VP 4.21.3
 शतानीकादश्वमेधदत्तो भविता ॥ VP 4.21.5
 तस्मादप्यधिसीमकृष्णः ॥ VP 4.21.6
 अथिसीमकृष्णान्निचक्षुः ॥ VP 4.21.7
 यो गङ्गयापहृते हस्तिनापुरे कौशाम्ब्यां निवत्स्यति ॥ VP 4.21.8

He, who is now the lord of Earth, the *Parīkṣit*, to him, *Janamejaya*, *Śrutasena*, *Ugrasena* and *Bhimasena*, 4 sons will be born.
 To *Janamejaya*, *Śatānīka* will be born.
 To *Śatānīka*, *Aśvamedhadatta* will be born.
 Then (to him) will be (born) *Adhisīma-Kṛṣṇa*.
 Of *Adhisīma-Kṛṣṇa* will be (born) *Nicakṣu*,
 He, on (river) *Gangā*'s taking-away (by its floods, his capital)
Hastināpura, in *Kauśāmbī* (city), he will take up residence.

This implies that the *Mahābhārata* war, that took place one year before the birth of *Parīkṣit*¹⁶⁹, and the event of flooding of *Hastināpura*, that occurred in early times of king *Nicakṣu*, were separated by about 185 years [1 year, plus 174 years (~6 generations¹⁷⁰), plus 10 years]. Adding these to the *Hastināpura* flooding time-range of [1000 BCE, 600 BCE], the archaeologically indicated time range of *Mahābhārata* war comes out as [1185 BCE, 785 BCE].

4. Genealogical Dating

It is recorded in the Buddhist literature, as also in the *Kathā Sarita Sāgara*, that, at the time of *Buddha*, the ruler of the *Vatsa* kingdom

¹⁶⁹ *Parīkṣit* was conceived at the start of war. Ascension of *Parīkṣit* is wrongly taken to be in the 36th year from the *Mahābhārata* war. It actually occurred in the 18th year from the *Mahābhārata* war.

¹⁷⁰ A generation is of 29 years and the generation time starts at the completion of 29 years which equals the 30th year.

with its capital at *Kauśāmbī* was the king *Udayana* (a.k.a. *Vatsarāja*) who was a *Bhārata* (descendent of *Bharata*) and a *Pāṇḍava* (descendent of *Pāṇḍu*). *Udayana* is also the famous protagonist of the *Saṃskṛt* drama *Vāsavadattā* that recounts his marriage with *Vāsavadattā*, the daughter of *Cānda Pradyota* of *Avantī/Ujjain*. It's further recorded that a great-grandfather of *Udayana* had relocated to *Kauśāmbī* city of *Vatsa* kingdom¹⁷¹ after the flooding of *Hastināpura*. As *Udayana* was born the same year as *Buddha*, he must have been born in 563 BCE¹⁷², the birth year of *Buddha*. As *Udayana* was crowned king at 21 years of age, his ascension took place in 542 BCE.

From the *Purāṇā* lists, we know the kings from *Yudhiṣṭhira* up to *Nicakru*, during whose reign the floods are said to have submerged *Hastināpura*. As the lists up to *Nicakru* are in past tense and much is known about these kings, the *Purāṇā* lists up to *Nicakru* can be trusted. When we combine the *Purāṇā* lists (*Yudhiṣṭhira* to *Nicakru* up to the floods) with the KSS/Buddhist lists (*Vasudāna* to *Udayana* after the floods), it amounts to only 12 generations (08 generations¹⁷³ from *Yudhiṣṭhira* to *Nicakru*, 04 generations from *Vasudāna* to *Udayana*) against the 26 generations stated in the *Purāṇā* for the same period. Clearly, the *Purāṇā* genealogies have interjected lists of about 13/14 names, in between *Nicakru* and *Vasudāna*, both of whom exist about the floods. These interjected lists are also in the future tense and can be rejected outright for they are nothing but the trash inserted by the *Sūtā* on

¹⁷¹ *Mahābhārata* tells us that the kingdom of *Vatsa* was won over by *Bhīma*, and attached to *Kuru* kingdom, during his conquest of the eastern quarter for the *Rajasuya Yajña* of *Yudhiṣṭhira*.

¹⁷² *Buddha's Nirvāṇa* year is very reliably fixed as 483 BCE, even as my own verification confirms it. *Buddha* died at an age of 80 years; exactly 44 years after the death of *Mahāvīra* in 527 BCE.

¹⁷³ By a succession count, *Nicakru* was 7th from *Yudhiṣṭhira*. But as *Yudhiṣṭhira* first ascended 40 years before the *Mahābhārata* war and as his successor *Parīkṣit* was his grandson, *Yudhiṣṭhira* needs to be counted as 02 generations.

account of their misunderstanding of the *Mahā-Yugā*. Nothing is known of the kings of these interjected lists except for their stated names, while we know great details of most other kings as far back as 3391 BCE, from these very *Purāṇā*. A mere cursory glance at the *Garuḍa Purāṇa* list makes it obvious that the names from Kṛṣṇa to Vṛṣṇimāna clearly belong to the *Vṛṣṇi* / *Yadu* lineage of *Kṛṣṇa*; *Aniruddha* was a grandson of *Kṛṣṇa*. Similarly, in the *Viṣṇu Purāṇa* list, the too obvious names of *Kṛṣṇa* & *Aniruddha* of the *Yadu/Vṛṣṇi* clan are removed, making an “improvement” over the list from *Garuḍa Purāṇa*, but others names are still retained.

<i>Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisomaka (Adhisīma Kṛṣṇa), (Kṛṣṇa, Aniruddha, Usna, Citraratha, Śucidratha, Vṛṣṇimāna), [Susena, Sunītha, Nrcaksu, Mukhabana, Medhāvī, Nrpañjya, Pariplāva, Sunaya, Brhadratha, Hari, Tigma], Śatānīka II, Sudānīka, Udāna (Udayana), Ahinara, Dañḍapāni, Niramitra, Kṣemaka, Śudraka</i>
<i>Garuḍa Purāṇa</i> (Ch. 141)
<i>Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru, (Usna, Vicitraratha, Śuciratha, Vṛṣṇimāna, Susena), [Sunītha, Nrpacaksu, Sukhavāla, Pariplāva, Sunaya, Medhāvī, Ripuñjaya, Mrdu, Tigma, Brhadratha], Vasudāna, Śatānīka II, Udayana, Ahinara, Dañḍapāni, Niramitra, Kṣemaka</i>
<i>Viṣṇu Purāṇa</i> (4.21)

But, in both these lists, there is agreement between the first part (*Yudhiṣṭhīra, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisomaka/Adhisīma Kṛṣṇa*) and the last part (*Śatānīka II*¹⁷⁴, *Sahasrāṇīka/Sudānīka, Udāna/Udayana, Ahinara, Dañḍapāni, Niramitra, Kṣemaka*). But in the middle of the lists, there is no agreement. Both the lists are in past tense up to *Adhisīma Kṛṣṇa* and can be trusted. *Nicakru/Nicakṣu* of *Viṣṇu Purāṇa* list seems to be omitted in the *Garuḍa Purāṇa* list but he has been mentioned

¹⁷⁴ The KSS tells us that *Sahasrāṇīka* (*Sudānīka*) was the son of *Śatānīka II* and the father of *Udayana*.

separately to be the one who shifted to *Kauśāmbī* after the *Hastināpura* floods. So, now we have a trustworthy list (A) up to the time of floods: (*Yudhiṣṭhira, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru/Nicaku*). For the time after the floods, the list (B), by the accounts of *Kathā Sarita Sāgara*, Buddhist literature and the *Purāṇā*, can be taken thus: (*Vasudāna, Śatānīka II, Sahasrāṇīka/Sudānīka, Udayana/Udāna, Ahinara, Daṇḍapāni, Niramitra, Kṣemaka*). Combining these two lists (A and B), we are able to reconstruct the original genealogy as follows:

(<i>Yudhiṣṭhira, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru</i>) : 'A' List (Before <i>Hastināpura</i> Floods, from the <i>Purāṇā</i>)
(<i>Vasudāna, Śatānīka II, Sahasrāṇīka/Sudānīka, Udayana/Udāna, Ahinara, Daṇḍapāni, Niramitra, Kṣemaka</i>) : 'B' List (After <i>Hastināpura</i> Floods, from KSS & Buddhist Literature)
Reconstructed Original Genealogy: ('A' List + 'B' List)
(<i>Yudhiṣṭhira, Parīkṣit, Janamejaya, Śatānīka I, Aśvamedhadatta, Adhisīma Kṛṣṇa, Nicakru/Nicaku</i>) + (<i>Vasudāna, Śatānīka II, Sahasrāṇīka / Sudānīka, Udayana/Udāna, Ahinara, Daṇḍapāni, Niramitra, Kṣemaka</i>)

Table 3.2
Correct Genealogy from after the *Mahābhārata* war

It can be noticed from the reconstructed original genealogy given above that *Parīkṣit* existed 9 generations before *Udayana*. As *Udayana* ascended at 21 years of age in 542 BCE, his personal generation time started in 534 BCE, with his 30th year. So, the personal generation time of *Parīkṣit* can be worked out to be 795 BCE (534+261), 9 generations (9x29=261 years) before that of *Udayana* (534 BCE). As the *Mahābhārata* war occurred 30 years (=1 Year + 1 Gen.) before the personal generation time of *Parīkṣit*, it can be genealogically dated to about 825 BCE (795+30). As will become known ahead shortly, the war actually took place in Dec, 827 BCE (~826 BCE). The great accuracy of a generation as being of 29 years is established from the simple observation that, counting back over 291 years (261+30) from *Udayana's* personal

generation time (534 BCE), we incur an error of only one year (826-825), or 0.34%, in calculating the time of *Mahābhārata* war genealogically. Taking two generations as margin of error, the *Mahābhārata* war range is 825 ± 58 BCE which equals [883 BCE, 767 BCE]. Since this range nearly falls within our archaeologically-indicated time range ([1185 BCE, 785 BCE]), the exact year of *Mahābhārata* war can now be arrived at only by looking for a match of the astronomical events described in the *Mahābhārata* text within this time range of [883 BCE, 767 BCE].

5. Exact Year of *Mahābhārata* War

The probable period of *Mahābhārata* war, as indicated by both the archaeology and the genealogy, is already established as the time range of [883 BCE, 767 BCE]. Now, before locating the exact year of war, it's important to know the meanings of terms 'Double Eclipse' and 'Double Eclipse Pair'.

A 'Double Eclipse' means either a Solar Eclipse (at New Moon Point) followed by a Lunar Eclipse (at Full Moon Point) or a Lunar Eclipse (at Full Moon Point) followed by a Solar Eclipse (at New Moon Point), within 14-15 days of the former eclipse. So, a 'Double Eclipse Pair' X years apart means two distinct 'Double Eclipses' events separated by X years.

5.1 The 13-Day Double Eclipse Pair

It is stated in the *Mahābhārata* text that there was a pair of similar double eclipses, 18 years apart (wrongly buy commonly thought to be 36 years), one double eclipse few months before the *Mahābhārata* war and another double eclipse at the time of *Dvārakā* massacre and its subsequent flooding. In each of these two famous double eclipses, a solar eclipse is stated to have occurred within 13 'days' of a lunar eclipse, a seemingly impossible phenomenon.

The first such double eclipse was noted by *Vedavyāsa* himself, among other omens foreboding a great destruction, to the king *Dhṛtarāṣṭra* a little before the war. The second such double eclipse was noticed by *Kṛṣṇa* at *Dvārakā*, in the 18th year (not 36th) from the *Mahābhārata* war. Leaving aside for now the actual time (18 years or 36 years) between these two double eclipses, first the feasibility of this phenomenon itself, the phenomenon of a 13-day double eclipse, needs to be evaluated.

5.2 Feasibility of a 13-Day Double Eclipse

The common belief regarding the double eclipses of *Mahābhārata* is that a solar eclipse occurred on the 13th day of a lunar eclipse but it should be understood that it is scientifically impossible for a solar eclipse to occur within 13 days of a lunar eclipse or vice-versa. The minimum time, between any two consecutive lunar and solar eclipses, that can be programmatically verified, is about 13.95 / 13.98 / 13.99 days, that too when the solar eclipse is the first in a double eclipse. On carefully analyzing the observation of *Vedavyāsa* regarding this '13-day' double eclipse, it becomes clear that *Vedavyāsa* didn't anywhere mean the day count between the two eclipses to be 13 but has only stated that the Moonrise, coincident with an eclipsed rising Sun, started before the 13th *Tithi* of dark fortnight (*Kṛṣṇa Pakṣa*) had completely finished:

चतुर्दशीं पञ्चदशीं भूतपूर्वो च षोडशीम् ।
इमां तु नाभिजानेऽहममावास्यां त्रयोदशीम् ।
चन्द्रसूर्यावुभौ ग्रस्तावेकमासीं त्रयोदशीम् ॥ MB 6.3.32

Previously on, Fourteenth, Fifteenth and Sixteenth (I know to have occurred), But this I don't recall, of the New Moon (to ever have come) on the Thirteenth (Tithi).

(Both) Moon and Sun are eclipsed, in one month, on the Thirteenth (Tithi).

Since a lunar eclipse can occur only at Full Moon Point, the actual day count between these 2 eclipses was just about 14 days, 1 day

for the Full Moon Day (day that follows the Full Moon Point) and 13 days for the 13 *Tithi* of the dark fortnight (*Kṛṣṇa Pakṣa*) that followed the Full Moon Day. As a new *Tithi* always begins with the completion of sunrise, the 13th *Tithi* was set to end with the “completion” of sunrise of the 14th day of dark fortnight. Also, the rising Sun of this 13th *Tithi* was eclipsed (Solar Eclipse) indicating the start of New Moon Day (*Amāvasyā*), the last day of dark fortnight. As *Vedavyāsa* must have observed the moonrise to be taking place before the completion of sunrise of 14th day, it was stated by him that the *Amāvasyā* came on the 13th *Tithi* itself. This is the true meaning of what *Vedavyāsa* meant by the solar eclipse and the *Amāvasyā* having come on the 13th *Tithi* itself. This phenomenon is certainly possible and it shouldn't be difficult to locate its exact dates in [883 BCE, 767 BCE], the time range of the *Mahābhārata* war.

5.3 Time-Gap of Double Eclipse Pair

Before proceeding further with the search of our double eclipse pair separated by 18/36 years, let's note the exact observation made towards it by *Kṛṣṇa* at *Dvārakā*, as recorded in the *Mausala Parva*, and as also narrated by *Vaiśampāyana*, the disciple of *Vedavyāsa*, at two more places in the *Mahābhārata* text:

एवं पश्यन् हृषीकेशः संप्रासं कालपर्ययम् ।
त्रयोदश्यामसावास्यां तान् द्रष्ट्वा प्राब्रवीदिदम् ॥ MB 18

Kṛṣṇa, thus seeing, the approach of time turned around for the worse,
And the New moon day happening on the 13th *Tithi* itself, and noticing them,
announced so.

चतुर्दशी पञ्चदशी कृतेयं राहुणा पुनः ।
प्रासे वै भारते युद्धे प्राप्ता चाद्य क्षयाय नः ॥ MB 19

“Caturdaśī (14th *Tithi*) has been turned into Pañcadaśī (15th *Tithi*, normally the New Moon/ *Amāvasyā* Day) by Rāhu again,
What was at the time of the Bhārata war, is now come again, indicating our destruction”

विमृशन्नेव कालं तं परिचिन्त्य जनार्दनः ।
मे ने प्राप्तं स षट्त्रिंशं वर्षे वै केशिसूदनः ॥ MB 20

*Discussing thus, about that (adverse) time, and thinking of it, the Krṣṇa, Found that it was now the 18th year (6*3) (since the Bhārata war), that slayer of Kesi.*

षट्त्रिंशो त्वथ सम्प्राप्ते वर्षे कौरवनन्दनः ।
ददर्थ विपरीतानि निमित्तानि युधिष्ठिरः ॥ MB 16.1.1

When 18th year (from the war) then started, O scion of the Kuru, Yudhiṣṭhīra noticed all negative omens.

षट्त्रिंशोऽथ ततो वर्षे वृष्णीनामनयो महान् ।
अन्योन्यं मुसलैस्ते तु निजघ्नुः कालचोदिताः ॥ MB 16.2.2

In the 18th year then, the great Vṛṣṇi clansmen, Mutually (fighting) with pestles, they struck down (each other), impelled by time.

It is commonly thought that the event of *Dvārakā Massacre and Flooding* happened 36 years after the *Mahābhārata* war. This belief is based on a wrong understanding that the word *Saṭtrimśam*¹⁷⁵ (षट्त्रिंशं / षट्त्रिंशम्) means 36. The number 36 is represented in *Samskr̥t* by the word *षट्त्रिंशद्* which means 6 (षट्) added to 30 (त्रिंशद्), and not by the word *षट्त्रिंशं*, whereas in all references given above, only the word *Saṭtrimśam* (षट्त्रिंशं) is used. Quite clearly, this is not a case of a possible spelling mistake and the text means to use only *Saṭtrimśam* (षट्त्रिंशं) and not *Saṭtrimśad* (षट्त्रिंशद्).

Currently, *Saṭtrimśam* (षट्त्रिंशं) is thought to mean 36 (30+6) whereas it may also mean 18 (6*3). There are two problems that are posed by accepting its meaning as 36. Firstly, *Parīkṣit* would be 16 years old in the 18th year from the war, the right age for anointment.

¹⁷⁵ As we already know by now that the interpretation of Vedic *Samskr̥t* numbers by Classical *Samskr̥t* can be tricky and misleading, utmost attention should be given to their translation.

Why would the already quite aged *Pāñdavā* keep their grandson *Parīkṣit* waiting for his anointment until his 34 years of age? Secondly, it greatly breaks the continuity of *Mahābhārata* text by introducing a sudden break of 18 years after the demise of *Dhṛtarāṣṭra* in the 18th year of *Yudhiṣṭhīra*'s rule. *Yudhiṣṭhīra* is unambiguously stated to have ruled for 15 years before *Dhṛtarāṣṭra* is said to have retired to forest where he perished in a forest fire in the 3rd year of his going there. Immediately after describing the event of demise of *Dhṛtarāṣṭra*, the *Mahābhārata* text states that "then, when it was the *Sattrimśam* year from the war, Yudhiṣṭhīra got the news of the massacre at Dvārakā (the city of Kṛṣṇa)". Coming to think of it, why would the *Mahābhārata* text suddenly jump ahead a full 18 years, past this event of *Demise of Dhṛtarāṣṭra*, directly to the event of *Dvārakā Massacre and Flooding*, without mentioning even one significant event from these additional 18 years, if the traditional interpretation of *Sattrimśam* as 36 years is considered correct?

All this is reconciled well when the word "*Sattrimśam*" (षट्ट्रिंशं / षट्ट्रिंशम्) is rightly interpreted to mean 18 ("6, taken 3 times"), as dictated by logical reasoning and common sense. Hence, there is no break of continuity in the *Mahābhārata* text in the 18th year from the war, after the event of demise of *Dhṛtarāṣṭra*. Both the events of the demise of *Dhṛtarāṣṭra* and that of *Dvārakā Massacre and Flooding* happened in the 18th year from the war. When the latter news reached *Yudhiṣṭhīra*, he anointed the 16-year old *Parīkṣit* as king and, along with his brothers and *Draupadī*, set out on his final journey now known as the *Svargārohāṇa*.

5.4 Search of Double Eclipse Pair

Given in the table below are all the double eclipse pairs, separated by 18 years and 36 years, which lie within [883 BCE, 767 BCE], the time range of *Mahābhārata* war:

~14 Day Double Eclipses spaced ~18/36 Years (LE: Lunar Ecl, SE: Solar Ecl, SRF: Sunrise Finish, MRS: Moonrise Start)		
Code	Hastināpura (IST)	Dvārakā (IST)
E1 (874 BCE)	LE: 22.11.-873 @ 23:32:04 SE: 07.12.-873 @ 08:27:48 (SRF: 07:02:11, MRS: 06:55:02)	SE Not Visible
E2 (827 BCE)	LE: 20.05.-826 @ 05:23:32 SE: 03.06.-826 @ 05:24:55 (SRF: 05:17:13, MRS: 05:15:05)	
E3 (820 BCE)	SE Not Visible	LE: 24.12.-819 @ 23:50:59 SE: 08.01.-818 @ 11:52:31 (SRF: 07:42:47, MRS: 07:31:36)
E4 (810 BCE)	LE: 10.06.-809 @ 23:54:13 SE: 25.06.-809 @ 09:50:14 (SRF: 05:13:23, MRS: 05:06:47)	LE: 10.06.-809 @ 23:54:13 SE: 25.06.-809 @ 09:25:43 (SRF: 06:04:54, MRS: 05:59:14)
E5 (790 BCE)	LE: 31.05.-789 @ 05:17:10 SE: 14.06.-789 @ 05:17:44 (SRF: 05:13:54, MRS: 05:09:10)	SE Not Visible

Table 3.3
Double Eclipses at *Kurukṣetra* and *Dvārakā*

As an eclipse is considered to be effective only in the territories where it's visible, all these double eclipses were checked for their visibility at both *Kurukṣetra* and *Dvārakā*. It's instantly noticeable that, of all these double eclipse pairs, the only pair that is about 18 years apart is the one indicated by the pair (E2, E4) with an actual gap of 18 years and 22 days between the two solar eclipses of Jun 03, 827 BCE (03.06.-826) and Jun 25, 810 BCE (25.06.-809). The double eclipse pair with a time gap of about 36 years, as indicated by the pair (E2, E5) could have also been a candidate but only if the eclipse pair E7 was observable at *Dvārakā*, which it was not. This search result clearly sanctions our earlier understanding of the meaning of "*Satṛīmśam*" as 18 and makes it obvious that the actual time gap between this double eclipse pair was about 18 years and not 36 years, as the relevant verses are commonly, but wrongly, interpreted to mean.

Of the double eclipse E4 observed by *Vedavyāsa* at *Hastināpura*, it can be noticed that the solar eclipse (Max at 03.06.-826 05:24:55 IST), and hence the new moon point, commenced before the sunrise (SR: 05:17:13 IST) of the day was complete, as inferred earlier. The statement of *Vedavyāsa* that he had never seen or heard of a solar eclipse that fell on the 13th *Tithi* itself was verified up to 1200 BCE, no other such solar eclipse was found.

So, 827 BCE (-826) is the exact year of *Mahābhārata* war, located purely on the basis of archaeology, genealogy and the stated Double Eclipse Pair of *Mahābhārata* text without any consideration for the ages of *Dvāpara-Yuga* and *Kali-Yuga* etc. The events of the death of *Dhṛtarāṣṭra*, the *Dvārakā* Massacre and Flooding, the passing away of *Kṛṣṇa* and the anointment of *Parīkṣit* as the king all happened in the year 810 BCE. It should be noted that no planetary positions from the *Mahābhārata* text have been used to locate the year of *Mahābhārata* war, but only the eclipses.

5.5 Cross-Validation

It can now be ascertained that, as mentioned by *Vedavyāsa*, there were asteroids (*Dhūmaketu*, “**56 Melete**”) in the *Puṣya Nakṣatra* (Can 0°-13°20’), in Oct/Nov of war year (827 BCE), as the great war happened closer to the time of a winter solstice:

Date Time (IST)	56 Melete (<i>Puṣya Q4</i>)	62 Erato (<i>Puṣya Q2</i>)
27.10.-826 05:28:11	(Can 12°42'02", -7.55°)	(Can 06°18'21", -1.32°)
28.10.-826 05:28:11	(Can 12°43'05", -7.61°)	(Can 06°16'08", -1.33°)
29.10.-826 05:28:11	(Can 12°43'46", -7.67°)	(Can 06°13'36", -1.33°)
30.10.-826 05:28:11	(Can 12°44'05", -7.73°)	(Can 06°10'45", -1.33°)
31.10.-826 05:28:11	(Can 12°44'02", -7.79°)	(Can 06°07'35", -1.34°)
01.11.-826 05:28:11	(Can 12°43'36", -7.85°)	(Can 06°04'07", -1.34°)
02.11.-826 05:28:11	(Can 12°42'48", -7.91°)	(Can 06°00'20", -1.34°)
56 Melete (Magnitude: 0.77, Swiss Ephemeris Planet No. 10056)		
62 Erato (Magnitude: 2.98, Swiss Ephemeris Planet No. 10062)		

Table 3.4
Asteroids in the *Puṣya Nakṣatra* in 827 BCE

5.6 Conclusion

Thus the year of *Mahābhārata* war is conclusively established as 827 BCE by the double eclipse pair and further verified by a fairly bright (Mag. 0.77) asteroid **56 Melete** (*Dhūmaketu*) that was in the *Puṣya Nakṣatra* in this year. Hereafter, *Yudhiṣṭhīra* ruled another 17 years and turned over the kingdom to a young *Parikṣit*, the grandson of *Arjuna*, in the 18th year from the war in 810 BCE. The event of flooding of *Hastināpura* happened about 185 years (1+6*29+10) later of war, in ~642 BCE, probably about 10 years into the reign of *Nicakṣu* who shifted to *Kauśāmbī*. It can be noticed that the (uncalibrated) radiocarbon dating of *Hastināpura* flood zone is off by about 158 years (~800 BCE against ~642 BCE). *Udayana* ascended the *Vatsa* throne at *Kauśāmbī* in 542 BCE, nearly 100 years after the flooding of *Hastināpura*. It'll be noticed ahead that all astronomical events and planetary positions from the *Mahābhārata* text stand fully matched. So, the year of *Mahābhārata* war (827 BCE) is a sheet anchor date of Indian history.

6. Start Date of the *Manvantara*

The great sage *Vedavyāsa* has clearly stated that the *Mahābhārata* war happened at the very juncture of *Dvāpara-Yuga* and *Kali-Yuga* of that *Mahā-Yuga* (the 28th one) which means it happened in the very last year (*Samvatsara*) of 28th *Dvāpara-Yuga*. As the war is now known to have occurred in 827 BCE, the *Kali-Yuga* that followed it ended 12 *Samvatsarā* later with 815 BCE (827-12) and 814 BCE was the first year of 29th *Mahā-Yuga*. Counting 28*120 *Samvatsarā* (a *Mahā-Yuga* is of 120 *Samvatsarā*, ~120 solstitial years) before 814 BCE, we get to 4174 BCE as the starting year, with starting winter solstice (Jan 21, 4174 BCE; 12:02:40 IST) of which started the counting of *Mahā-Yuga* cycles. Now, by the very conceptualization of *Vedāṅga Jyotiṣa* (Vedic Calendar), the first counting of time should begin from a winter solstice day that falls on the next day

of a new moon day. What this implies is that the starting winter solstice of 4174 BCE should fall on a day next to a new moon day for the *Vedāṅga Jyotiṣa* and the year of *Mahābhārata* war to be mutually validated. On checking, we find that the starting winter solstice of year 4174 BCE (21.01.-4173 12:02:40 IST) was indeed next to a new moon day. So, not only the *Vedāṅga Jyotiṣa* and the year of *Mahābhārata* war are mutually validated, but also the very first *Tithi*, the base date of our present age (*Manvantara*), is revealed to us as **Jan 21, 4174 BCE**. As shown in the next chapter, this base date also provides us the year of birth of king *Rāma* in a snap as he was born in the last year of 24th *Tretā-Yuga*.

7. The Genealogies

Given below are genealogies of the Lunar Line, the Solar Line and the kings of Ujjain & *Magadha* from before the time of *Mahābhārata*:

Gen	Year	Lunar Line (<i>Hastināpura</i> and <i>Kauśāmbī</i>)	Solar Line (at <i>Ayodhyā</i>)
115	-867	<i>Yudhiṣṭhīra</i>	<i>Bṛhadbala</i>
116	-838	<i>Abhimanyu+</i>	<i>Bṛhadkṣaya, Uruksaya</i>
117	-809	<i>Parīkṣit</i>	<i>Kṣaya</i>
118	-780	<i>Janamejaya</i>	<i>Vatsavyuha, Vatsadroha</i>
119	-751	<i>Śatānīka I</i>	<i>Prativyuha, Prativyoma</i>
120	-722	<i>Aśvamedhadatta</i>	<i>Divākara</i>
121	-693	<i>Adhisoma Krṣṇa</i>	<i>Sahadeva</i>
122	-664	<i>Nicakṣu</i> [+INT. LIST of 8-10 kings]	<i>Bṛhadāśva, Dhruvāśva</i>
123	-635	<i>Vasudāna</i>	<i>Bhānuratha</i> (+INT. LIST of 8-10 kings)
124	-606	<i>Śatānīka II</i> (n) called by Indra in a war against the Asurā. Asura Zoroaster fled Āryāvarta in ~600 BCE.	<i>Kṛtañjaya, Kṛtavarmā</i> of KSS (d) <i>Mrgāvatī</i> (sil) <i>Sahasrāṇīka</i>

Gen	Year	Lunar Line (<i>Hastināpura</i> and <i>Kausāmbī</i>)	Solar Line (at <i>Ayodhyā</i>)
125	-577	<i>Sahasrāñika</i> (fil) <i>Kṛtañjaya</i>	<i>Rānejaya, Rānañjaya</i>
126	-548	<i>Udayana</i> (n) born 563 BCE, ascended 542 BCE	<i>Sañjaya Mahākosala</i>
127	-519	<i>Ahinara</i>	<i>Prasenjit</i> (d) <i>Vajirā</i> (sil) <i>Ajātaśatru</i>
128	-490	<i>Dandapāñi</i>	<i>Viḍūḍabha / Virudhaka</i>
129	-461	<i>Niramitra</i>	<i>Kulaka, Kṣulika</i>
130	-432	<i>Kṣemaka</i>	<i>Suratha / Sumitra</i>
131	-403	<i>Mahānandī+</i> (n) the son of a barber who erased all kings	<i>Mahānandī+</i>

Note: The *Purāṇā* are not to be trusted for the time after Gen.122.

Table 3.5
Kings of Lunar and Solar Lines #Gen. 115-131

Gen	Year	Avantī / Ujjain	Magadha
115	-867	<i>Vinda & Anuvinda</i>	<i>Jarāsamdhā</i>
116	-838	X	<i>Sahadeva</i>
117	-809	X	<i>Somādhi / Meghasamdhī</i>
118	-780	X	<i>Śrutasravā</i>
119	-751	X	<i>Ayutāyu, Apratīpi</i>
120	-722	X	<i>Niramitra</i>
121	-693	X	<i>Sukṛta, Surakṣa</i>
122	-664	X	<i>Bṛhadkarmā</i>
123	-635	X	<i>Senajit</i>
124	-606	<i>Mahendra Varman</i>	<i>Śrutañjaya [+INT. LIST]</i>
125	-577	<i>Jayasena</i>	<i>Ariñjaya / Ripuñjaya</i>
126	-548	<i>Cañḍa Pradyota / Mahāsenā</i> (555 BCE)	<i>Bhaṭṭiya / Kṣemajīt+</i> <i>Bimbisāra</i> (542 BCE)
127	-519	<i>Pālaka</i> (527 BCE)	... (Bimbisāra: ruled 52 years)
128	-490	<i>Nandīvardhana / Avantīvardhana</i>	<i>Ajātaśatru</i> (490 BCE) (fil) <i>Prasenjit</i>
129	-461	X	<i>Udāyībhadra+ (Aniruddha/ Muṇḍa)+</i> (458 BCE)

Gen	Year	<i>Avantī / Ujjain</i>	<i>Magadha</i>
130	-432	X	<i>Nāgadāsaka / Darśaka</i> (434 BCE) (b) <i>Śiśunāga+</i>
131	-403	<i>Mahānandī+</i>	<i>Mahānandī / Kālāśoka / Kākavarṇa</i> (392 BCE)

Table 3.6
Kings of Ujjain and *Magadha* #Gen. 115-131

8. Vedic Calendar of War-Year

Now the Vedic calendar of the war year (827 BCE) can be drawn up using the formulae provided in the first chapter:

$$\text{Manvantara-Year}(X) = 4175 - 827 = 3348$$

$$Y_A = \text{Manvantara-Year}(X) / 5 = 669.6$$

$$Y = \text{CEILING}(Y_A) = 670$$

$$Y_Y = \text{CEILING}((1-(Y - Y_A))/0.2) = \text{CEILING}(0.6/0.2) = 3$$

$$M\text{Y}_A = \text{Manvantara-Year}(X) / 120 = 27.9$$

$$M\text{Y} = \text{CEILING}(M\text{Y}_A) = 28$$

$$M\text{Y}_Y = \text{CEILING}(1-(M\text{Y} - M\text{Y}_A))*120 = \text{CEILING}(0.9*120) = 108$$

Where X = General Year (BCE/CE), Y_A = Actual *Yuga*, Y = *Yuga No.*,

Y_Y = *Yuga Year*, $M\text{Y}_A$ = Actual *Mahā-Yuga*, $M\text{Y}$ = *Mahā-Yuga No.*,

$M\text{Y}_Y$ = *Mahā-Yuga Year*

These calculations tell us of the *Mahābhārata* war that:

- 1) It happened in the 3348th Manvantara-Year, as counted from the base date of Jan 21, 4174 BCE.
- 2) It happened in the 3rd year of 670th *Yuga* which means that it was a year of 13 months with an intercalary lunar month of *Āṣāḍha* (*Ādhika*) in its middle.
- 3) It happened in the 28th *Mahā-Yuga* in its 108th year which is also the last year of 28th *Dvāpara-Yuga* ($108=48+36+24$) which implies that, for the 28th *Mahā-Yuga* to complete, only 12 more years remained which were the 12 years of the 28th *Kali-Yuga*.

Calculating further:

$$\begin{aligned}
 \text{Adjustment}(670) &= Q(670/6) - Q(670/60) + Q(670/120) = 105 \\
 \text{Adjustment}(670-1) &= Q(669/6) - Q(669/60) + Q(669/120) = 105 \\
 \text{Month-Correction}(670) &= \text{Adjustment}(670) - \text{Adjustment}(670-1) = 0 \\
 \text{Ending Months}(670) &= 62 * 670 - \text{Adjustment}(670) = 41,435 \\
 \text{Yuga Months}(670) &= 62 - \text{Month-Correction}(670) = 62
 \end{aligned}$$

Where $Q(x)$ is the Quotient of x .

These calculations tell us that the 670th *Yuga* was of 62 months and that a full 41,435 lunar months had elapsed by its end since the base date of Jan 21, 4174 BCE.

Calculating still further:

$$\begin{aligned}
 \text{Yuga-End Offset}(670) &= 670 * 4.68144067 - \text{Adjustment}(670) * 29.5305882 \\
 &\quad + 670 * 0.001472283 - 1.35752743 \\
 &= 35.482393427
 \end{aligned}$$

$$\begin{aligned}
 \text{Year-End Offset}(670,3) &= \text{Yuga-End Offset}(670) - 7.778705 \\
 &\quad + \text{Month-Correction}(670) * 29.5305882 \\
 &= 35.482393427 - 7.778705 + 0 \\
 &= 27.703688427
 \end{aligned}$$

These final calculations tell us that the last new moon of the 670th *Yuga* was about 35.48 days ahead of the nearest winter solstice point and that the last new moon of the 3rd year of this 670th *Yuga* (827 BCE, the year in which the war happened) was about 27.70 days ahead of the nearest winter solstice point.

Since the winter solstice point for 827 BCE was on “29.12.-826 06:02:58 IST”, the last new moon point should be about 27.70 days later on “26.01.-825 08:16:47 IST”. On checking, we find it was about an hour earlier on “26.01.-825 07:02:24 IST”. As the new moon point lies before the midday of the day (sunrise-to-sunrise), “26.01.-825” was the new moon day and “27.01.-825” was the first day of next month of *Māgha*, and hence, also the first day of next

Samvatsara. Using this information, we are able to draw up the relevant portion of the calendar for the war year of 827 BCE:

No.	Month	First Day	Full Moon Day	Last Day	Season (<i>Rtu</i>)**
5	<i>Jyeṣṭha</i>	06.05.-826	20.05.-826 (LE) (FMP: 07:29 IST)	03.06.-826 (SE)	<i>Grīṣma</i> (Summer)
6a	<i>Āṣāḍha</i> (Ādhika, IC)	04.06.-826	19.06.-826	03.07.-826	<i>Grīṣma</i> (Summer)
6b	<i>Āṣāḍha</i>	04.07.-826	18.07.-826	01.08.-826	<i>Varṣa</i> (Rains)
7	<i>Śrāvaṇa</i>	02.08.-826	16.08.-826	31.08.-826	<i>Varṣa</i> (Rains)
8	<i>Bhādrapada</i>	01.09.-826	15.09.-826	30.09.-826	<i>Śarada</i> (Autumn)
9	<i>Aśvin</i>	01.10.-826	14.10.-826	30.10.-826	<i>Śarada</i> (Autumn)
10	<i>Kārtika</i>	31.10.-826	13.11.-826 (FMP: 12.11.-826 15:52:34 IST) (LE)	28.11.-826	<i>Hemanta</i> (Pre-Winter)
11	<i>Mārgaśīrṣa</i>	29.11.-826	12.12.-826	28.12.-826	<i>Hemanta</i> (Pre-Winter)
12	<i>Pauṣa</i>	29.12.-826	11.01.-825	26.01.-825	<i>Śiśira</i> (Winter)
1	<i>Māgha</i> (Next Year)	27.01.-825	10.02.-825 (FMP: 09.02.-825 17:24:17 IST)	25.02.-825	<i>Śiśira</i> (Winter)
** Seasons (<i>Rtu</i>) are tied only to actual equinoxes and solstices: W.S.: 29.12.-826 06:02:58 IST, V.E.: 29.03.-826 19:16:40 IST S.S.: 02.07.-826 00:29:49 IST, A.E.: 01.10.-826 19:11:14 IST					

Table 3.7

Vedic Calendar of 827 BCE, the *Mahābhārata* war year

It can be noted that the 13-day double eclipse was separated by the dark fortnight of the 5th month of *Jyeṣṭha*. As the solar eclipse occurred during the sunrise of Jun 03, 827 BCE (03.06.-826), Jun 03 was correctly reckoned as the *Amāvasyā* day (New Moon day) by *Vedavyāsa*. The still next day of Jun 04, 827 BCE was the first day of the next month of *Āṣāḍha* (Ādhika).

8.1 Kārtika Full Moon & Calendar Validation

Vedavyāsa, during his peace efforts with the king *Dhṛitarāṣṭra* on the eve of war, mentioned, amongst many other omens, the Full Moon of *Kārtika* Month by saying that the *Kārtika* full moon appeared to be lackluster and of the color of fire (little reddish).

अलक्ष्यः प्रभयाहीनः पोर्णमासीं च कार्तिकीम् ।
चन्द्रोऽभूदग्निवर्णश्च पद्मवर्णनभस्तले ॥ MB 6.2.23

Hard-to-discern, lost-of-luster, was the Full Moon night of Kārtika month, Moon was of the hue of fire (copper-red), at the bottom of a lotus-colored (reddish-pink) sky.

It's scientifically known that when a full moon or near full moon looks to be coppery, it means it is passing through either the Umbra or the Penumbra of Earth's shadow. During the time of its passing through the Umbra, the full moon doesn't receive direct sunlight but only the red-wavelength part bent around the Earth's edges. This red-wavelength light received by moon is then reflected back by the moon to Earth, thus making it appear red.

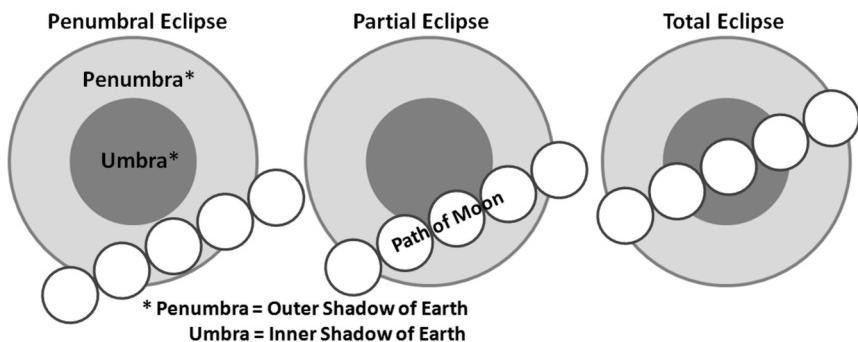


Figure 3.1
Anatomy of the Lunar Eclipse

Now, from the war year calendar, it can be noted that there is a penumbral lunar eclipse of the full moon in the *Kārtika* month on Nov 12, 827 BCE (Max @ 17:37:08 IST, Ended @ 18:40:49 IST), on

the night preceding the Full Moon Day (Nov 13, 827 BCE). This eclipse is clearly the aforementioned Lackluster Full Moon observation of *Vedavyāsa*, and it not only validates the computation method of Vedic calendar but also gives us a very important clue for locating the exact day of the start of war. If the intercalary month of *Āṣāḍha* (*Ādhika*) wasn't there in this year's calendar, it would be the previous lunar month that would have been the *Kārtika* month, in which case, the Lackluster Full Moon would have been counted in the next month of *Mārgaśīrṣa*, as a consequence of which, this year couldn't have been the war year. So, the Lackluster Full Moon observation validates the war year calendar along with its intercalary month.

Also, as the war obviously started after the peace talk of *Vedavyāsa*, it didn't start until a few days from Nov 12. At the earliest possible, the first day of war could only be Nov 14. So, our search range for the exact day of the start of *Mahābhārata* war is narrowed down to [Nov 14, 827 BCE - Jan 27, 826 BCE].

9. Peace Mission of *Kṛṣṇa*

After their 13-year exile, the last year of which was spent in hiding in the *Virāṭa* city of *Matsya* kingdom, the *Pāñdavā* shifted to *Uppalavanya* that was another city of *Matsya* kingdom. Deliberating over the future course of action to reclaim their kingdom, they requested *Kṛṣṇa* to act as their messenger to *Duryodhana*, to tell him to either return their kingdom honorably, as their 13-year exile was completed successfully, or face them in the battlefield.

9.1 Setting Out

Kṛṣṇa is said to have set out on this peace mission to *Hastināpura* in the month of *Kaumudī*, which is an alternative name for the lunar month of *Kārtika*, on the day of *Revatī Nakṣatra*:

ततो व्यपेते तमसि सूर्ये विमल उद्भूते ।
 मैत्रे मुहूर्ते संप्राप्ते मद्वर्चिषि दिवाकरे ॥ MB 5.83.6
 कौमुदे मासि रेवत्यां शरदन्ते हिमागमे ।
 स्फीत सस्य सुखे काले कल्यः सत्ववतां वरः ॥ MB 5.83.7

*Then, making the night pass away, the clear sun arose (in the skies),
 On attainment of the Maitra Muhūrta (the 3rd Muhūrta) by the Sun,
 In the Kaumudī (Kārtika) month, in the Revatī Nakṣatra, at the end of
 Autumn season and the onset of Pre-Winter season,
 Of flourishing crops, was the pleasant time, (when the crops) were healthy &
 full of life.*

The phrase **शरदन्ते हिमागमे** (*Saradante Himāgame*), which literally translates to “*at the end of Autumn and onset of Pre-Winter*” also attests to this independently. This phrase clearly indicates the time being talked of as starting at expiry of one month after the autumnal equinox, where the second month of autumn season ends and the first month of pre-winter season starts. As can be seen from our war year calendar, the autumnal equinox in this year is coincident with the start of month of *Aśvin*, making the next month of *Kārtika* the month being talked about. Within the month of *Kārtika*, the day of *Revatī Nakṣatra* was Nov 07, 827 BCE (07.11.-826), a day of *Kārtika Śukla Aṣṭamī* (S08), which is when *Kṛṣṇa* started out for *Hastināpura* on his peace mission and camped out in the open that night.

9.2 Efforts in *Hastināpura*

The next morning, on Nov 08, 827 BCE (08.11.-826), *Kṛṣṇa* reached *Hastināpura*, met the *Kuru* elders and took some rest. On the still next day, Nov 09, 827 BCE (*Kārtika* S10), he tried counseling *Duryodhana* and other *Kauravā* in the *Kuru* court. But, on complete failure of his peace efforts, he started back for *Uppalavya*, the camping city of the *Pāñdavā*, the very same day. This was the third day from his setting out on Nov 07.

9.3 Talk with Karṇa

While the *Kauravā* were customarily going to see off *Kṛṣṇa* as far as the city limits, *Kṛṣṇa* got *Karṇa* to ride on his own chariot and revealed to him the true secret of his birth. He told him that, in reality, he was the first son of *Kuntī* and hence the eldest brother of the *Pāñḍavā* and that, if he wanted to switch to the righteous side of the *Pāñḍavū* after listening to this truth, the *Pāñḍavū* will most happily welcome him as their eldest brother and that, it will be him (*Karṇa*), and not *Yudhiṣṭhīra*, who will be crowned the king after the *Kauravā* were vanquished in the war.

Karṇa replied to *Kṛṣṇa* that he already knew this now and requested him to keep it a secret from the *Pāñḍavā* because if they came to know that he was their elder brother, the righteous brothers will not fight in his opposition. He further replied that, no matter what the end result of the war, he couldn't switch sides at that crucial juncture lest he be known as a coward and an opportunist amongst the warriors and that it was his *dharma* (duty) to reciprocate, even if with his life, the great respect and friendship accorded to him by *Duryodhana* when the rest of the world made fun of him. *Kṛṣṇa* then remarked that since *Karṇa* didn't appreciate the beneficence of kingship of entire Earth being bestowed on him by *Kṛṣṇa* himself, he should, on going back, tell the *Kuru* elders to begin the war preparations on the New Moon Day that was to follow the 7th day from that day. The 7th day (Nov 15, *Kārtika* K02) from that day (Nov 9) of return of *Kṛṣṇa*, being the day of the most holy and auspicious *Puṣya Nakṣatra*, was reserved by *Kṛṣṇa* for setting out for the battlefield:

सप्तमाद्वापि दिवसाद्मावास्या भविष्यति ।
संग्रामो युज्यतां तस्यां तामाहुः शक्रदेवताम् ॥ MB 6.142.18

"After (setting out on)** the 7th day from today, in the New Moon that will follow,
let the war preparations begin then, (from the new moon day of the Nakṣatra
whose lord is said to be the Indra (the *Jyeṣṭhā Nakṣatra*)"

** It's common sense that *Kṛṣṇa* wasn't referring to directly starting the war on 7th day since the huge armies of both sides, one stationed in *Uppalavya* and the other stationed in *Hastināpura*, still had to first get to the quite far-off battlefield of *Kurukṣetra* (172 km. from *Hastināpura*), raise cantonments and ensure provisions before engaging in war. A huge army with elephants can hardly move more than 25-30 km/day; it would have taken them 6-7 days only to reach *Kurukṣetra*.

To this, *Karṇa* replied that he factually knew that the *Pāñḍavā* led by him (*Kṛṣṇa*) are most righteous and established in the *dharma* and are destined to win and that all the *Kauravā* headed by *Duryodhana* will be definitely slain in the war. Next, he mentioned some greatly negative omens for the *Kauravā*, three of which are related to planetary positions that he may have noticed a day or two before, and are listed below:

प्राजापत्यं हि नक्षत्रं ग्रहस्तीक्ष्णो महाद्युतिः ।
शनैश्चरः पीडयति पीडयन्प्राणिनोऽधिकम् ॥ MB 6.143.8
कृत्वा चाइगारको वक्रं ज्येष्ठायां मधुसूदन ।
अनुराधां प्रार्थयते मैत्रं संगमयन्निव ॥ MB 6.143.9
नूनं महद्वयं कृष्ण कुरुणां समुपस्थितम् ।
विशेषेण हि वार्ष्ण्य चित्रां पीडयते ग्रहः ॥ MB 6.143.10

To the Nakṣatra of Prajāpati (Rohini), the sharp and glorious planet, The Saturn (planet) is giving trouble (by retrograding towards it), (which action is) troubling all creatures excessively.

From Mars, is located behind (anti-clockwise) the Jyeṣṭhā Moon, O Kṛṣṇa! Anuradha longs for the company of Sun (its lord), who is about to go away. Certainly, a great fear, O Kṛṣṇa, the Kuru descendants are now faced with, Specially, O Vārṣneya (descendent of Vṛṣṇi), Citrā Nakṣatra is being troubled by (some) planets.

Karṇa is likely to have made his above-mentioned observation from the *Sarvatobhadra Cakra* (SBC) chart of the morning of Oct 30, 827 BCE (30.10.-826, *Aśvin* K16, *Amāvasyā*), which was the last day (a new moon day) of the last month. This *Sarvatobhadra Cakra* (SBC) is shown in the following figure.

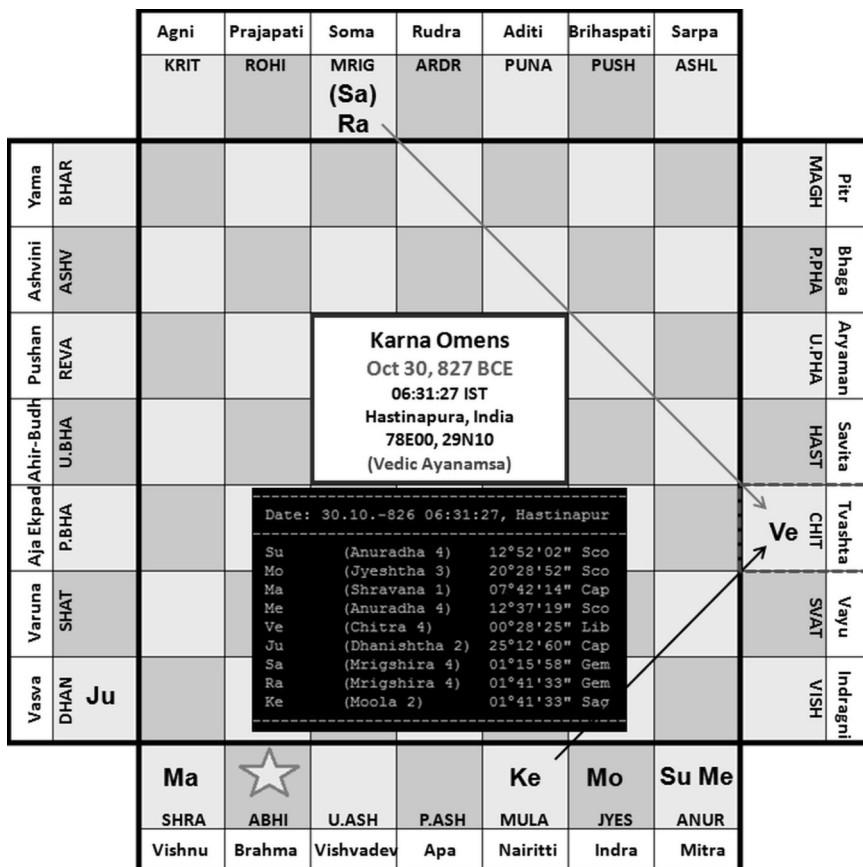


Figure 3.2
SBC of Planetary Positions noted by *Karna*

It can be seen from the above chart, as to why *Karṇa* called the *Citrā Nakṣatra* as being especially tormented. All the three evil planets (Saturn/Sa, *Rāhu/Ra* and *Ketu/Ke*) are piercing (casting *vedha* on) the *Citrā Nakṣatra* by diagonal aspects. Also, the Asurā guru Venus/Ve is present in *Citrā*, a *Nakṣatra* of *Ādityā* the gods.

After this secret talk of theirs, *Karṇa* finally bid farewell to *Kṛṣṇa*, got off his chariot and returned to *Hastināpura* along with the other *Kauravā*. This event was narrated in detail by *Sañjaya*, through the all-knowing Yogic insight accorded to him by the sage *Vedavyāsa*, when the king *Dhṛtarāstra* specifically asked him

to detail the dialogue that occurred between *Kṛṣṇa* and *Karna*. In fact, the entire description of the war was detailed by *Sañjaya* to *Dhṛtarāṣṭra* through the Yogic insight.

9.4 Departure for Battlefield

Then, in the *Śalya Parva*, it's stated that, on his return from *Hastināpura* after failure of his peace mission, *Kṛṣṇa* told the *Pāṇḍavā* to start out with the armies for the battlefield (*Kurukṣetra*) in the highly auspicious *Puṣya Nakṣatra*, the day of which was already near:

ततः प्रत्यागतः कृष्णो धार्तराष्ट्रविसर्जितः ।
 अक्रियायां नरव्याघ्रं पाण्डवानिदमब्रवीत् ॥ MB 9.35.9
 न कुर्वन्ति वचो मह्यं कुरवः कालनोदिताः ।
 निर्गच्छ त्वं पाण्डवेयाः पुष्येण सहिता मया ॥ MB 9.35.10

*Then returned the Kṛṣṇa, having taken leave of Dhṛtarāṣṭra.
 "Failure (of the peace talks), O tigers amongst men" said this to the Pāṇḍavā.
 "They don't listen to my counsel, those Kauravā, impelled by the time (of their impending deaths),
 You start out (for the battlefield of Kurukṣetra), O Pāṇḍavā, in the Puṣya Nakṣatra, along with me."*

Meanwhile, *Kṛṣṇa* ignored the suggestion of his elder brother *Balarāma* to also provide help to the *Kauravā*. *Balarāma*, who immensely loved his younger brother *Kṛṣṇa*, was annoyed at this and decided to go on a pilgrimage rather than watch his cousins on both sides kill each other in the battlefield. Subsequently, the *Kṛtavarmā* faction of the *Yadavā*, along with the most *Yadavā* armies, sided with the *Kauravā* but *Kṛṣṇa* and his constant companion *Sātyaki* sided with the *Pāṇḍavā*. Then, on the 7th day of *Kṛṣṇa*'s return from *Hastināpura*, on Nov 15, 827 BCE (15.11.-826), the day of *Puṣya Nakṣatra*, the *Pāṇḍavā* and *Kṛṣṇa* also set out for

the battlefield of *Kurukṣetra*, after *Balarāma* had already set out for his pilgrimage in early morning:

युयुधानेन सहितो वासुदेवस्तु पाण्डवान् ।

रौहिणेये गते शूरे पुष्येण मधुसूदनः ॥ MB 9.35.15

पाण्डवेयान् पुरस्कृत्य ययावभिमुखः कूर्लन् । MB 9.35.16a

And, along with Yuyudhāna (Sātyaki), Kṛṣṇa (chose) the Pāñḍavā.

When the brave Son-of-Rohinī (Balarāma) was gone (on pilgrimage), in the Puṣya Nakṣatra; Kṛṣṇa,

Keeping the Pāñḍavā in the front, set out for Kurukṣetra (the battlefield).

Subsequent to this, all the armies reached *Kurukṣetra* in a few days, performed worship of the Goddess on the New Moon day, established cantonments, ensured provisions and supply and fixed the rules of war. From the day of setting out for the battlefield on 15.11.-826, all these activities were completed in 24 days.

The worship of goddess that is stated to be performed on the new moon day, by both the *Pāñḍavā* and the *Kauravā* after their reaching the battlefield of *Kurukṣetra*, took place on Nov 28, 827 BCE (28.11.-826), the day of *Kārtika Amāvasyā* and *Divālī*. *Divālī*, the festival of lights, which is celebrated on *Kārtika Amāvasyā*, is a day that is correctly associated with the worship of Goddess but wrongly taken as the day of *Rāma*'s return to *Ayodhyā*.

When all was arranged, both sides engaged in war for 18 days. *Balarāma* returned from his pilgrimage by the midday of last day of the war.

9.5 *Balarāma's Return*

On the last day of the war, *Balarāma* returned from his pilgrimage and recounted that 42 days have passed since he set out for his

pilgrimage in the *Puṣya Nakṣatra* and that now it was the day of *Śrāvaṇa Nakṣatra*.

अब्रवीच्च तदा रामो दृष्ट्वा कृष्णं सपाण्डवम् ।
 दुर्योधनं च कौरव्यं गदापाणिमवस्थितम् ॥ MB 9.35.5
 चत्वारिंशदहान्यद्य द्वे च मे निःसृतस्य वै ।
 पुण्येण सम्प्रयातोऽस्मि श्रवणे पुनरागतः ॥ MB 9.35.6
 शिल्ययोर्वै गदायुद्धं द्रुष्टकामोऽस्मि माधव । MB 9.35.7-A

*Then said the Balarāma, beholding Kṛṣṇa along with Pāṇḍavā,
 And (also the) Duryodhana, the Kaurava, with a mace in his hands.
 42 days today have passed, since I set out (for the pilgrimage),
 in Puṣya I went out and (now) in Śrāvaṇa I have returned,
 My (both) disciples' mace-fight I now wish to witness, O Mādhava!*

Adding 42 days to our *Puṣya Nakṣatra* date of Nov 15, 827 BCE (15.11.-826) mentioned above, we get the day of *Balarāma's return*, and also the last day of war, as Dec 27, 827 BCE (27.12.-826), a day on which it was the *Śrāvaṇa Nakṣatra*.

9.6 Conclusion

Since, in the *Kārtika* month of war year, the *Revatī Nakṣatra* day, when *Kṛṣṇa* set out on his peace mission, and the *Puṣya Nakṣatra* day, when *Balarāma* set out for his pilgrimage and the *Pāṇḍavā* for the battlefield, came only once, the day of *Balarāma's return* after 42 days, which was also the last day of war, is quite conclusive and leaves us no alternate options of war-dates to be evaluated further.

The last day of war, Dec 27, 827 BCE (27.12.-826) also provides us the starting date of war as Dec 10, 827 BCE (10.12.-826) since the war lasted exactly 18 days. All these event dates, as knowable from *Kṛṣṇa's* Peace Mission, can be now recapitulated as follows:

No	<i>Mahābhārata Event</i>	Date
1	<i>Kṛṣṇa sets out on his Peace Mission</i> (Kārtika S08 **, Revatī Nakṣatra)	Nov 07, 827 BCE (07.11.-826)
2	<i>Kṛṣṇa's Talk with Kārṇa</i> , and return on 3 rd day (Kārtika S10, Bharanī Nakṣatra)	Nov 09, 827 BCE (09.11.-826)
3	<i>Pāñḍavā and Kṛṣṇa set out for Kurukṣetra while Balarāma sets out on his Pilgrimage</i> , Duryodhana also sets out for Kurukṣetra (Kārtika K02, Puṣya Nakṣatra)	Nov 15, 827 BCE (15.11.-826)
4	Goddess Worship in the battlefield of Kurukṣetra on the New Moon Day (Kārtika K15, Amāvasyā, P.Āśāḍha Nakṣatra)	Nov 28, 827 BCE (28.11.-826)
5	First Day of War (Mārgaśīrsa S12, Ārdrā Nakṣatra)	Dec 10, 827 BCE (10.12.-826)
6	Last Day of War, 42 days from Balarāma setting out for Pilgrimage (Mārgaśīrsa K15, not Amāvasyā, Śrāvāṇa Nakṣatra)	Dec 27, 827 BCE (27.12.-826)

** S08 = Šukla Aṣṭamī = 8th Day of Bright Lunar Fortnight = 8th Tithi

Table 3.8

Mahābhārata Events starting with Kṛṣṇa's Peace Mission

10. Exact Dates of Mahābhārata War

As derived in the previous section, the war dates are as follows:

1	1st Day of War (Mārgaśīrsa S12, Ārdrā Nakṣatra)	Dec 10, 827 BCE (10.12.-826)
2	10th Day of War (Fall of Bhīṣma) (Mārgaśīrsa K07, Citrā Nakṣatra)	Dec 19, 827 BCE (19.12.-826)
3	14th Day of War (Late-Night Moonrise) (Mārgaśīrsa K11, Jyeṣṭhā Nakṣatra)	Dec 23, 827 BCE (23.12.-826)
4	18th and Last Day of War (Mārgaśīrsa K15, day before Amāvasyā, Śrāvāṇa Nakṣatra)	Dec 27, 827 BCE (27.12.-826)

Table 3.9

Dates of Mahābhārata War

To develop complete confidence in these dates, let's now cross-validate them by the event of Late-Night Moonrise on the night of 14th day of war.

10.1 Cross-Validation of War Dates

It is stated in *Drona Parva* that on the 14th day of war, for the first time during the war, the war extended into the night without stopping at the sunset. Post midnight, a small break of about 2 hours was announced by *Arjuna*, till a time until the moonrise. This moonrise is now commonly known as the event of Late-Night Moonrise.

ततो मुहूर्ताद्भूवनं ज्योतिर्भूतमिवाभवत् ।
 अप्रख्यमप्रकाशं च जगामाश्च तमस्तथा ॥ MB 7.159.46

ततः प्रवृत्ते युद्धं पुनरेव विशाम्पते ।
 लोके लोकविनाशाय परं लोकमभीप्सताम् ॥ MB 7.185.57

त्रिभागमात्रेषायां रात्र्यां युद्धमर्वत्त ।
 कुरुणां पाण्डवानां च संहृष्टानां विशाम्पते ॥ MB 7.186.1

Then, within a Muhūrta (after the Moonrise), the world, became lighted, The invisibility (of things) vanished, went away quickly, the darkness. Then commenced the war again (after the aforesaid Muhūrta), O King, In this world, for its destruction, (by the warriors) desiring the higher worlds. When only 3 parts¹⁷⁶ (3 Muhūrtā) of the night remained, the war resumed, Of the Kauravā and the Pāṇḍavā who were now well-refreshed (by a little sleep), O King.

It states that when the war resumed in the night, the Moon had already risen for 1 *Muhūrta* and at which time, only 3 more parts of night (3 *Muhūrtā*) were left for the night to be over. Since the night always ends 0.5 *Muhūrta* before the sunrise, it becomes known that when the moon arose, there were 4.5 *Muhūrtā*

¹⁷⁶ There are 30 parts of a day known as the *Muhūrta*, 14 of which fall in the day, 14 in the night and 2 are of the dawn and the dusk. The general duration of a *Muhūrta* is 48 minutes.

(1+3+0.5) remaining to the sunrise, a duration that generally equals 216 minutes (4.5×48) or 3.6 hours ($216/60$). So, the moonrise should have happened about 3.6 hours before the sunrise. Since the time of moonrise varies substantially each successive day, if our war dates are in error of even 1 day, the event of Late-Night Moonrise of 14th night would be out of line by at least an hour.

Now the 14th day of War was Dec 23; listed below are the exact computed time of these relevant events:

No.	Event (Year 827 BCE)	Time (IST)
1	Sunset of 14 th Day of War	Dec 23, 17:30:35 (Midnight: Dec 24, 00:24:46)
2	Late-Night Moonrise of 14 th Night	Dec 24, 03:43:29 (Dec 23: 02:44:35, Dec 25: 04:46:07)
3	Sunrise of 15 th Day of War	Dec 24, 07:18:57

Table 3.10
Event of Late-Night Moonrise on 14th Night of War

It can be noticed that the moonrise of 14th day happened exactly 3.59 hours (07:18:57 - 03:43:29) before the sunrise of 15th day. From the stated figure, this is in an error of only 0.01 hour (3.6 - 3.59) which equals 0.6 minute.

It's amazing that the exact time of moonrise of the 14th night could be known through the Yogic insight correct to the minute. Noticing this precision to the minute, of a record from 827 BCE, who can still dare say that the *Mahābhārata* is mythology? So, the exact war dates stand fully corroborated by this event of the Late-Night Moonrise of 14th day of War.

11. *Bhiṣma Nirvāṇa*

It's known that *Bhiṣma* fell on the 10th day of war but died later.

On the day of his death, *Bhiṣma* tells *Yudhiṣṭhīra* that now the *Uttarāyaṇa* (the event of Sun turning north about the time of Winter Solstice, as reckoned from the start of first month of *Māgha* in the Vedic Calendar) has come, that he has spent 58 restless nights¹⁷⁷ since the start of war and that only 3 more days remain to the completion of bright fortnight of *Māgha* month (First Month of *Samvatsara*):

अष्ट पञ्चाशतं रात्र्यः शयानस्याद्य मे गताः ।
 शरेषु निशिताग्रेषु यथा वर्षशतं तथा ॥ MB 13.153.28
 माघोऽयं समनुप्रासो मासः सौम्यो युधिष्ठिर ।
 त्रिभागशेषः पक्षोऽयं शुक्लो भवितुमर्हति ॥ MB 13.153.29

58 nights, sleeping here (in battleground, since the war commenced), are spent by today;

*(Lying pierced) on top of these sharp arrowheads, it feels like 100 years to me. Month of *Māgha* has (already) come, it's a pleasant month, O Yudhiṣṭhīra, (Nearly) Three parts¹⁷⁸ (days) are left of its present *Pakṣa* (lunar fortnight), which is called the *Śukla Pakṣa* (Bright Lunar Fortnight).*

¹⁷⁷ *Bhiṣma* was referencing the first day of war in his day count and not the day of his fall since his sleep was disturbed from day one of war due to constantly inflicted wounds by sharp arrows in the battle.

¹⁷⁸ Here, the *Śamskr̥t* word त्रिभाग (“three parts”) can’t be translated arbitrarily as most translators do. They give its meaning as 22.5 days because *Bhiṣma* is commonly thought to have died on the noon of the 8th lunar day (S08). It should be understood that the *Śamskr̥t* word भाग (meaning *parts*), wherever stated in reference to time, represents the parts as defined by the rules stated in the Vedic texts and not just anything that the translator might wish to make of it. Of a lunar month, there are either 2 parts (2 fortnights) or 30 parts (30 days); of a fortnight, there are only 15/16 parts; of a day, there are either 2 parts (2 *Karāṇa*) or 30 parts (30 *Muhūrtā*) and so on. Here (MB 13.153.29) it’s clear that the three parts stated to be left are in relation to the fortnight (त्रिभागशेषः पक्षो). As there are 15/16 divisions, the 15/16 *Tithis* (lunar days), of a lunar fortnight, the “3 parts” here mean only the “3 days”.

Now, 58 nights from the first day of war (**Dec 10, 827 BCE**) are spent by **Feb 6, 826 BCE** (06.02.-825). From the calendar, this was the day of *Māgha Śukla Ekādaśī* (S11):

No.	Month	First Day	Full Moon Day	Last Day
11	<i>Mārgaśīrṣa</i>	29.11.-826	12.12.-826	28.12.-826
12	<i>Pausa</i>	29.12.-826	11.01.-825	26.01.-825
1	<i>Māgha</i> (Next Year)	27.01.-825	10.02.-825 (FMP: 09.02.-825 17:24)	25.02.-825

Table 3.11
Vedic Calendar of 827-826 BCE

The statement of *Bhīṣma*, on this day of his passing away, that only 3 parts remained for the *Śukla Pakṣa* (Bright Fortnight) to conclude means that the full moon day of that month (*Māgha*) was to come on the 4th day from that day. Now, the 4th day from Feb 06 is Feb 09 but the full moon day was on Feb 10. So, there is an error of one day, either in the 58-day count of *Bhīṣma* or in his understanding of the calendar date. It's quite natural for *Bhīṣma*, a greatly troubled aged man, to have made a one day error in his count. The likelihood of this error is more for the 58-day count than for the count of 03 more days that remained for the fortnight to conclude. So, it appears that ***Bhīṣma died on Feb 07, 826 BCE (Māgha Śukla Dvādaśī, S12, also a day of Maghā Nakṣatra)***, having spent 59 days on the arrowbed, when 3 more days (त्रिभाग) remained for that fortnight to conclude. So, *Bhīṣma Dvādaśī*, a date observed on S12 day of *Māgha* month towards the *Śrādha* (oblations for the dead) of *Bhīṣma*, is actually the day of his death.

Now, there is an unnumbered verse where *Vaiśampāyana* states that *Bhīṣma* died on *Māgha* S08 and that the Moon was in *Rohiṇī* Nakṣatra about noon that day. But this verse clearly seems to be a later interjection because it's neither found in the northern recensions, nor it's in conformity with what is said by *Bhīṣma* himself or with the actual dates of war. It can also be checked that

S08 of *Māgha* month was in *Ardrā Nakṣatra* (Feb 03, 826 BCE) and not in *Rohiṇī Nakṣatra* that was on Feb 01, 826 BCE (S06).

(शुक्लाश्चस्य चाष्टम्यां पात्रमासस्य पार्श्विक ।

प्राजापत्ये च नक्षत्रे पाद्यं प्राते दिवाकरे ॥)

निवृत्तमात्रे त्वयन उत्तरे वै दिवाकरे ।

समावेशयद् आत्मानं आत्मनि एव समाहितः ॥ MB 13.47.3

In the bright fortnight, on 8th day, in month of Māgha, O King,

In Rohiṇī Nakṣatra, when midday was attained by the Sun.

*When the sun had turned Uttarā already, i.e. when the Sun had turned north,
Uttarāyaṇa had begun; Bhīṣma's soul joined the Supreme Divine.*

12. Omens of *Vedavyāsa*

The sage *Vedavyāsa* visited the king *Dhṛtarāṣṭra* sometime before the war and asked him if he wanted to witness the war with the Yogic-insight. *Dhṛtarāṣṭra* refused this but showed interest in hearing the true account of it. *Vedavyāsa* then granted the Yogic insight to *Sañjaya*, the *Sūta* who was a companion-cum-caretaker of the blind *Dhṛtarāṣṭra*, so he could detail the events of war to *Dhṛtarāṣṭra*. Then, in a last attempt at peace, *Vedavyāsa* told *Dhṛtarāṣṭra* that unnecessary violence hasn't been praised in the *Vedā* and described to him the many ill-omens that forebode the impending doom and destruction of his sons headed by *Duryodhana*. *Vedavyāsa* also told *Dhṛtarāṣṭra* that he could still prevail upon his son since he is the actual king and can issue a royal decree on him to desist from war. But *Dhṛtarāṣṭra* cut short *Vedavyāsa* politely and expressed his inability to stop what fate had already ordained for the warriors: to attain heaven on being killed by weapons in the war.

The time of this visit of *Vedavyāsa* to king *Dhṛtarāṣṭra* is not clearly stated in *Mahābhārata* but now we know that *Kṛṣṇa* returned from *Hastināpura* back to *Pāñdavā* on Nov 09, 827 BCE (09.11.-826), after

his peace efforts were laid waste. *Kṛṣṇa* had told *Karṇa* to intimate back to the *Kaurava* elders that the armies should set out for battlefield on the 7th day from that day, which was the day of *Puṣya Nakṣatra*, the day of Nov 15, 827 BCE (15.11.-826). It is also common sense that the visit of *Vedavyāsa* had to be at least a day or two before the armies of *Duryodhana* left for the battlefield on Nov 15, 827 BCE. What was the use of peace efforts at *Hastināpura* if the armies had already set out for the battlefield of *Kurukṣetra*, a place 172 Km. away from *Hastināpura*?

Also, *Vedavyāsa* mentioned to *Dhṛtarāṣṭra* his observation of *Kārtika* Full Moon night, the full moon night of Nov 12, 827 BCE when the Moon was shorn of its radiance by a penumbral eclipse. Clearly, the visit of *Vedavyāsa* was only after the *Kārtika* Full Moon night of Nov 12, 827 BCE but it also had to be before the *Puṣya Nakṣatra* day of Nov 15, 827 BCE, marked for an auspicious departure of *Duryodhana*'s armies to the battlefield. So, there are only two days in between, that of Nov 13 (Full Moon Day) and Nov 14 (K01 day) when *Vedavyāsa* could have possibly visited *Dhṛtarāṣṭra*. As the full moon day (Nov 13) was considered very auspicious, it was likely Nov 13 that was the day of visit of *Vedavyāsa*.

Now, the most planetary positions described by *Vedavyāsa* must have been marked down on the *SBC* chart by a disciple of his, either on the morning of last new moon day (Oct 30, 827 BCE) or on the morning of last full moon day (Nov 12, 827 BCE). It makes more sense to record the observation on the last day (new moon day) of the month; to be able to make any required monthly calendar adjustments. On checking the planetary positions on both these days, we find that the planetary positions described by *Vedavyāsa* were noted down on the morning of Oct 30, 827 BCE, about the sunrise at 06:31:27 IST, which was the last day of *Aśvin* month. The planetary positions described by *Vedavyāsa*, thought to be highly complex and puzzling, are completely demystified the moment they are marked on the *Sarvato Bhadra Cakra* (*SBC*) as it is quite clear that *Vedavyāsa* is reading the positions off an *SBC*.

The SBC of Oct 30, 827 BCE (30.10.-826 06:31:27 IST, *Hastināpura*) is provided below and all aspects & positions mentioned by *Vedavyāsa* are marked out by arrows and lines:

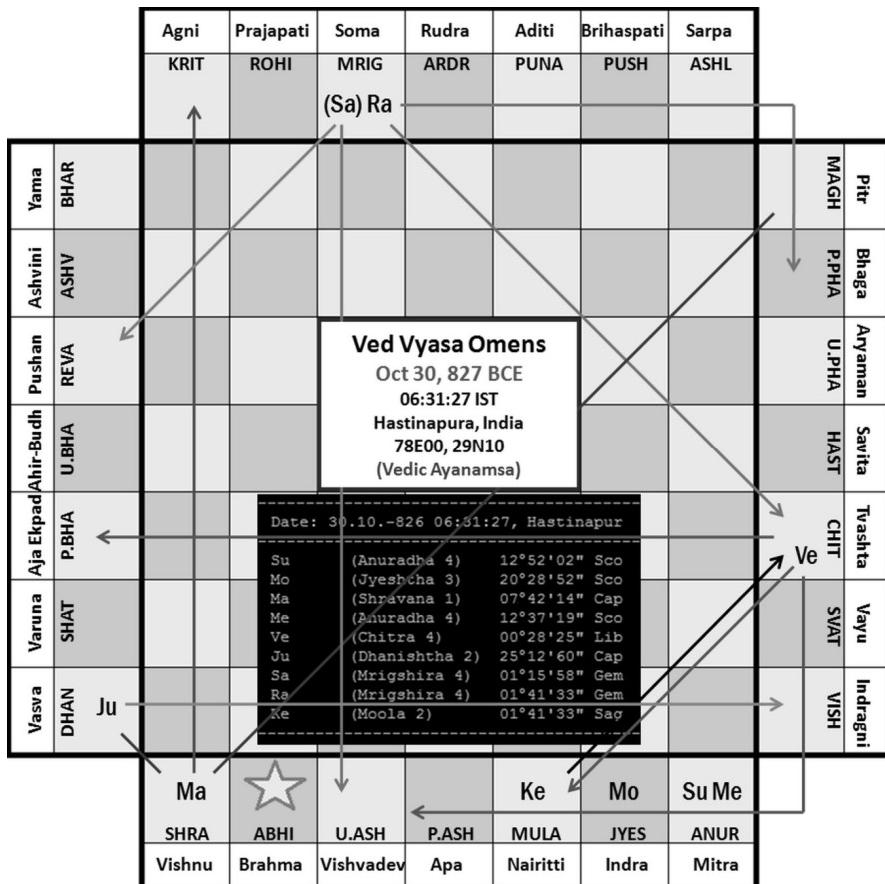


Figure 3.3

Sarvatobhadra Cakra of the day of most Omens of *Vedavyāsa*

The slant/diagonal positions are stated as वक्र (Vakra) or वक्रम् (Vakram). On the SBC, all planets also aspect the 7th position (peripheral aspect) from their own positions, apart from casting the direct and slant/diagonal aspects. Listed below are all the various observations, as also the planetary positions specific to the SBC, of *Vedavyāsa*:

अलक्ष्यः प्रभयाहीनः पौर्णमासीं च कार्तिकीम् ।
चन्द्रोऽभूदग्निवर्णश्च पद्मवर्णनभस्तले ॥ MB 6.2.23

*Hard-to-discern, lost-of-luster, was the Full Moon of (the month of) Kārtika,
Moon was of the hue of fire, at the bottom of a lotus-colored sky.*

Here, *Vedavyāsa* is talking about the Full Moon night (Nov 12, 827 BCE) when the Full Moon lacked luster due a penumbral lunar eclipse and looked coppery. It's been described in detail earlier.

रोहिणीं पीडयन्नेष स्थितो राजज्ञनैश्चरः ।
व्यावृत्तं लक्ष्म सोमस्य भविष्यति महाद्वयम् ॥ MB 6.2.32

*Rohiṇī is being troubled, such is situated, O King, the Saturn,
Shorn of its radiance is the Moon, there will be great danger.*

Saturn is situated in the *Mṛgaśirā Nakṣatra* and is retrograding towards *Rohiṇī Nakṣatra*, hence the trouble to it.

श्वेतो ग्रहस्तथा चित्रां समतिक्रम्य तिष्ठति ।
अभावं हि विशेषेण कुरुणां तत्र पश्यति ॥ MB 6.3.12

*White planet (Venus), having crossed over Citrā, sits there (at its end),
Annihilation, indeed a special one, of the Kuru, from there, it desires.*

The planet Venus/Ve is named after *Shukra*, the guru of the *Asurā*. Its presence in *Citrā Nakṣatra* is not considered good as the *Citrā Nakṣatra* is owned by *Tvaṣṭā*, one of the 12 *Ādityā* (the gods or the *Surā*). The *Asurā* were the cousins and the sworn enemies of the *Surā*.

धूमकेतुर्महाघोरः पुष्यं चाक्रम्य तिष्ठति ।
सेनयोरशिवं घोरं करिष्यति महाग्रहः ॥ MB 6.3.13

*An asteroid, extremely ominous, Pusya (Nakṣatra) it attacks, sitting there,
For the armies, great misfortune will it bring, this great heavenly body.*

It's already shown that the asteroids “56 Melete” and “62 Erato” were in the *Pusya Nakṣatra* for a long time about the war time.

मधास्वङ्गारको वक्रः श्रवणे च वृहस्पतिः ।
भर्गं नक्षत्रमाक्रम्य सूर्यपुत्रेण पीड्यते ॥ MB 6.3.14

*Maghā is (located) slant of Mars as is Śrāvāṇa of Jupiter,
The Bhaga god's Nakṣatra, is attacked by Saturn, who is troubling it.*

The Maghā Nakṣatra is located slant of Mars' position in Śrāvāṇa Nakṣatra and the Śrāvāṇa Nakṣatra is located slant of Jupiter's position in Dhaniṣṭhā Nakṣatra. The Purvā Phalgunī Nakṣatra, a Nakṣatra of the Bhaga god, being located at the 7th place from Saturn, falls under its peripheral aspect and hence it is being troubled by it.

शुक्रः प्रोष्ठपदे पूर्वे समारुद्ध्य विरोचते ।
उत्तरे तु परिक्रम्य सहितः समुदीक्षते ॥ MB 6.3.15

*Venus, to the first Proṣṭhapadā (Purvā Bhādrā Nakṣatra), sitting at the same level, aspects it,
Uttarā Āśāḍha (Nakṣatra) also, along the Perimeter (of ecliptic), it is looking forward to aspect (by its 7th position / peripheral aspect).*

Purvā Bhādrā and Uttarā Bhādrā Nakṣatrā were earlier known as the Proṣṭhapadā Nakṣatrā and here Vedavyāsa is talking about the first Proṣṭhapadā, the Purvā Bhādrā Nakṣatra, which is under the direct aspect of Venus. Venus is in last quarter of Citrā Nakṣatra and as soon as it moves to next Nakṣatra, it would be aspecting the Uttarā Āśāḍha Nakṣatra by its 7th position aspect (peripheral aspect along the ecliptic).

श्यामो ग्रहः प्रज्वलितः सधूम इव पावकः ।
ऐन्द्रं तेजस्त्वं नक्षत्रं ज्येष्ठामाक्रम्य तिष्ठति ॥ MB 6.3.16

*The dark planet (Mercury), is shining bright, (and is) along with Sadhūma (Ketu) and Pāvaka (Sun),
Aindram (Jyeṣṭha Moon), (is) in the Bright Nakṣatra Jyeṣṭhā, (which) it is attacking and (where) it is sitting.*

Mercury, Sun and Ketu are all located nearby and the Moon is in the Jyeṣṭhā Nakṣatra. It can also be noticed from the chapter on Rāmāyaṇa, that the word Sadhūma is also used in the Rāmāyaṇa to denote the south node of Moon, the Ketu.

ध्रुवं प्रज्वलितो घोरमपसव्यं प्रवर्तते ।
सौहिर्णि पीडयन्तेवामुभौ च शशिभासकसे ।
चित्रास्वात्यन्तरे चैव विष्ठितः परुषग्रहः ॥ MB 6.3.17

Very brilliantly shining, the extreme turnaround for worse, it sets about, Between Citrā and Svāti, passes the Evil heavenly body (asteroid).

There were two large asteroids/comets (“16 Psyche”, “39 Atalante”) passing through the middle of Citrā and Svāti Nakṣatras about this time, so Vedavyāsa must have noticed one of them.

वक्रानुवक्रं कृत्वा च श्रवणं पावकप्रभः ।
ब्रह्मराशि समावृत्य लोहिताङ्गो व्यवस्थितः ॥ MB 6.3.18

(Mutually) Slant and Anti-Slant are Śrāvāṇa and Pāvaka-Prabhā (Jupiter), Brahmā’s Region (Abhijit Nakṣatra), having passed it, the Mars is located.

The Śrāvāṇa Nakṣatra and the Jupiter are mutually located slant and anti-slant, while the Mars, having crossed the Abhijit Nakṣatra, is located in the Śrāvāṇa Nakṣatra.

संवत्सरस्थायिनौ च ग्रहौ प्रज्वलितावुभौ ।
विशाखयोः समीपस्थौ वृहस्पतिशनैश्चरौ ॥ MB 6.3.27

The Saṃvatsara stabilizers, both the shining planets, In Viśākhā’s neighborhood are they (by aspect), the Jupiter and the Saturn.

Jupiter is casting a direct aspect to Viśākhā Nakṣatra and Saturn is slantly/diagonally aspecting the Citrā Nakṣatra, the previous-to-previous Nakṣatra of Viśākhā, hence they stated as being in “neighborhood” of Viśākhā (by their aspects).

कृत्तिकां पीडयन्तीक्षणैर्नक्षत्रं पृथिवीपते ।
अभीक्षणवाता वायन्ते धूमकेतुमवस्थिताः ॥ MB 6.3.30

Kṛttikā Nakṣatra is being tormented sharply, O lord of Earth! Constantly attacked it is, by a tailed Dhūmaketu (asteroid) situated there.

The asteroid/comet “65 Cybele” (Magnitude 3.24) was in Kṛttikā Q3 (Tau 00°05'06", Lat: 2.74°) this time, moving backwards through it.

चतुर्दशीं पञ्चदशीं भूतपूर्वो च पोडशीम् ।
 इमां तु नाभिजानेऽहममावस्यां त्रयोदशीम् ।
 चन्द्रसूर्यावुभौ ग्रस्तावेकमासीं त्रयोदशीम् ॥ MB 6.3.32

Previously on, Fourteenth, Fifteenth and Sixteenth (I know to have occurred), But this I don't recall, of the New Moon Point (to ever have come) on the Thirteenth (Tithi) itself.
(Both) Moon and Sun are eclipsed, in one month, by the Thirteenth (Tithi).

This is the mention of the ominous **13-Day Double Eclipse** that occurred a few months back. It's been discussed in detail earlier:

Lunar Eclipse: May 20, 827 BCE (Max @ 05:23:32 IST)
 Solar Eclipse: Jun 03, 827 BCE (Max @ 05:24:55 IST)

So, it can be noticed that there is also a complete match of all planetary positions described by the *Vedavyāsa*.

13. Birth Dates of *Kṛṣṇa* & *Pāndavā*

Since we have come so far as to discover the actual dates of *Mahābhārata* war, locating the date of birth of the great divinity of *Kṛṣṇa* is something that can't be dispensed with, for millions and millions of hopeful souls in India aspire to know it due to their great devotion to the ever high-souled *Kṛṣṇa*, said to be the complete avatar of *Viṣṇu*.

As *Kṛṣṇa* was born in a *Śrāvaṇa* month and *Arjuna* was born in the *Phālguna* month of the successive year, *Kṛṣṇa* was elder to *Arjuna* by about 6-7 months. By knowing the approximate age of *Arjuna* at the time of war, a search range for *Kṛṣṇa*'s date of birth can be established. To approximate *Arjuna*'s age at the time of war, we need to make rough estimates of *Arjuna*'s age against the major events, as listed in the table below:

No.	<i>Mahābhārata</i> Event (+Years)	<i>Arjuna's Age</i>	
		A	B
1	On death of <i>Pāndu</i> , the sages bring <i>Kuntī</i> and the <i>Pāñdavā</i> to <i>Hastināpura</i>	14	
2	All princes complete their military education with <i>Dronācārya</i> in 1-2 years (+2)	16	
3	<i>Yudhiṣṭhira</i> is anointed the Crown-Prince (+1)	17	
4	<i>Pāñdavā</i> leave for <i>Vārṇāvata</i> (+1)	18	
5	<i>Pāñdavā</i> stay in <i>Vārṇāvata</i> about 1 year before going in hiding (+1)	19	
6	<i>Pāñdavā</i> are married to <i>Draupadī</i> about 1 year from the end of their <i>Vārṇāvata</i> stay (+1)	20	
7	On return to <i>Hastināpura</i> , given half-kingdom of <i>Indraprastha</i> (New Delhi) to rule (+0)	20	
8	<i>Yudhiṣṭhira rules 6/11 years before Arjuna leaves for his 12-year exile (+6) or (+11) **</i>	26	31
9	<i>Arjuna</i> returns after his 12 year exile (+12)	38	43
10	<i>Yudhiṣṭhira</i> rules another 7-9 years (since the 5 sons from <i>Draupadī</i> and <i>Abhimanyu</i> are said to be born after <i>Arjuna's</i> return) (+9)	47	52
11	<i>Pāñdavā</i> complete their exile of 13 years (+13)	60	65
12	War happens about an year later, <i>Abhimanyu</i> was about 16 years this time (+1)	61	66
13	<i>Yudhiṣṭhira</i> rules another 17 years and coronates the 16-year old <i>Parīkṣit</i> (+17)	78	83

**** Note:** The year when *Arjuna* undertook his 12-year exile was either the 6th year or the 11th year from the start of their rule in *Indraprastha* (*Purana Qila* / Old Fort at New Delhi). This is so because when the mutually-formed rule (detailed ahead) regarding their common-wife *Draupadī* was breached by *Arjuna*, it was *Yudhiṣṭhira's* year with *Draupadī*. As *Yudhiṣṭhira* was the eldest, his years with *Draupadī* were 1, 6, 11 etc., those of *Bhīma* 2, 7, 12 etc. and those of *Arjuna* 3, 8, 14 etc. Most likely, it was the 11th year but for a conservative estimate, it can be considered to be the 6th year for now.

Table 3.12
Arjuna's age through major events of Mahābhārata

Arjuna had to undertake his 12-year exile because he had unavoidably breached a mutually-formed rule amongst the *Pāñdava* brothers regarding the sharing of their common wife *Draupadī*. This sharing rule was formed amongst the *Pāñdava* brothers on the advice of sage *Nārada* when they had shifted to *Indraprastha*. The rule was that *Draupadī* will be with each brother for one full year and if, during that year, another brother was to see them sitting together alone in some room, then that brother would undertake a 12-year exile.

One evening, an angry Brahmin, whose cows were just stolen and who was ready to curse the king if not helped immediately, came running to the court and demanded immediate action to recover his cows from the thieves that he said were speeding away. But as the time of court was over, the king *Yudhiṣṭhira* was sitting with *Draupadī* in an inner compartment. *Arjuna*, who was present there at that time, told the Brahmin that he will recover the Brahmin's cows at once. As *Arjuna* went to collect his bows and quiver from his inner quarters, he had to unavoidably pass through a room where *Yudhiṣṭhira* was present with *Draupadī*. A 12-year exile appeared lighter to *Arjuna* than the curse of an angry Brahmin set upon the king. Subsequent to his recovering the *Brahmin*'s cows, *Arjuna* decided to undertake a 12-year exile as it was *Yudhiṣṭhira*'s year with *Draupadī* and the brothers' mutual rule was breached by *Arjuna*, no matter what the reason. *Yudhiṣṭhira* tried to desist *Arjuna* from undertaking the exile by telling him that he was merely following his *dharma* in protecting the king and the *Brahmin*'s cows. But *Arjuna* nonetheless proceeded on his 12-year exile after saluting *Yudhiṣṭhira*.

So, per the table given above, *Arjuna*'s age at the time of war can be estimated as about 61 (or 66) years. Considering an error margin, *Arjuna*'s age could be taken as about 55-70 years before the war (827 BCE). This is the range of [896 BCE - 881 BCE] which is also the range of birth year of *Kṛṣṇa*.

Now, *Kṛṣṇa* is clearly stated to have been born on the 8th night of the dark fortnight of the Śrāvaṇa month, in the Rohiṇī Nakṣatra. From this range of 15 years, where the Śrāvaṇa K08 dates are in Rohiṇī Nakṣatra, we get a set of 9 possible birth-dates of *Kṛṣṇa*. To allow for margin of error, the dates where the Nakṣatra (at local noon) is the last quarter of previous Nakṣatra (*Kṛttikā* Q4) or the first quarter of the next Nakṣatra (*Mṛgaśirā* Q1) are also included:

01, 09.07.-895: Rohiṇī Q1	06, 11.07.-887: Mṛgaśirā Q1
02, 17.07.-893: Kṛttikā Q4	07, 19.07.-885: Rohiṇī Q3
03, 24.07.-891: Rohiṇī Q3	08, 25.07.-883: Kṛttikā Q4
04, 13.07.-890: Kṛttikā Q4	09, 15.07.-882: Rohiṇī Q1
05, 03.07.-889: Kṛttikā Q4	

Table 3.13
Possible Birth-dates of *Kṛṣṇa*

Now, the Pāñḍavā came to Hastināpura just as Arjuna completed his 14th year, following which they spent about 2 years with Dronācārya. Yudhiṣṭhira was made the crown-prince a year later. Another year later, the Pāñḍavā were ordered by Dhṛtarāṣṭra to go and spend some time in Vārnāvata, where Dhṛtarāṣṭra's son Duryodhana had gotten constructed a house of inflammable materials to burn them down. It's stated that the Pāñḍavā left for this Vārnāvata city on the 8th day of a Phālguna month in Rohiṇī Nakṣatra:

अष्टमेऽहनि रोहिण्यां प्रयातः फल्जुनस्य ते ।
 वारणावतमासाद्य ददृशुर्नागं जनम् ॥ MB 1.157.33

On the 8th day, in Rohiṇī Nakṣatra, they set out, in the Phālguna month, To Vārnāvata; having gotten there, (they) beheld the city's crowds.

So, at the time of their leaving for Vārnāvata, Arjuna was about 18 years (14+2+1+1) old and Yudhiṣṭhira, being 3 years elder to him, was about 21 years old. But, considering the margin of error, Arjuna's age range at this time can be taken to be 16-20 years.

Since *Kṛṣṇa* was only about 7 months elder to *Arjuna*, the event of *Pāñḍavā* leaving for *Vārṇāvata* must have happened sometime in between his 16th and 20st year. If, on counting from a possible date of birth of *Kṛṣṇa*, such a *Vārṇāvata* date doesn't seem to exist in the 16-20 year range, then that possible date of birth of *Kṛṣṇa* gets eliminated. From each of the possible dates of *Kṛṣṇa*'s birth listed earlier, we check for all the years in the 16-20 year range, in which the 8th day of *Phālguna* month (S08) is in *Rohiṇī Nakṣatra*. To allow the margin of error, the dates wherein the *Nakṣatra* seems to be in last quarter of previous *Nakṣatra* (*Kṛttikā*) or the first quarter of the next *Nakṣatra* (*Mṛgaśirā*) are included. As can be seen, there is a match for only 02 possible birth dates of *Kṛṣṇa*, out of the initial 09:

If Kṛṣṇa Birth Date: 17.07.-893

Match in Year 19: 28.01.-874 (S01), 04.02.-874 (S08), *Mṛgaśirā Q1*

If Kṛṣṇa Birth Date: 24.07.-891

Match in Year 17: 28.01.-874 (S01), 04.02.-874 (S08), *Mṛgaśirā Q1*

Table 3.14

Possible Dates of *Pāñḍavā* leaving for *Vārṇāvata* city

This reduces the possible birth dates of *Kṛṣṇa* to only two:

No.	<i>Kṛṣṇa's Birthday</i> (<i>Śrāvana</i> K08)	<i>Arjuna's Birthday</i> (<i>Phālguna</i> Month, <i>U.Phalgunī Nakṣatra</i> Q1)	<i>Arjuna's Age at</i> <i>Start of War</i> (10.12.-826)
1	17.07.-893 <i>Kṛttikā Q4</i>	01.02.-892 (S15, also a Full Moon Day)	66.85 years
2	24.07.-891 <i>Rohiṇī Q3</i>	08.02.-890 (S15, next day is a Full-Moon Day)	64.83 years

Table 3.15

Possible Birth-date Sets of *Kṛṣṇa* and *Arjuna*

Also, as the result gives us **only one possible date for the event of *Pāñḍavā* leaving for *Vārṇāvata*: Feb 04, 875 BCE (04.02.-874)**, it becomes known that *Arjuna*, born 18 years prior to this event, must have been born in 893 BCE and thus, *Kṛṣṇa* in 894 BCE.

Now, it's also possible to get *Kṛṣṇa's* date of birth directly from *Arjuna's* statement about his age towards the end of one-year hiding period of *Pāñḍavā*. *Arjuna* quoted his age, when he named all previous owners of his divine bow *Gāndīva* to prince *Uttara* of *Matsya* kingdom, just before he defeated the *Kuru* warriors, led by *Duryodhana*, who had come to steal the cows of *Matsya* kingdom:

एतद्वर्षसहस्रं तु ब्रह्मा पूर्वमधारयत् ।
ततोऽनन्तरमेवाथ प्रजापतिरधारयत् ॥ MB 4.43.5
त्रीणि पञ्चशतं चैव शक्रोऽशीति च पञ्च वै ।
सोमः पञ्चशतं राजा तथैव वरुणः शतम् ।
पार्थः पञ्च च षष्ठिं च वर्षाणि श्वेतवाहनः ॥ MB 4.43.6

This (Gāndīva), for 1000 years, Brahmā first wielded, then, sometime after that, Prajāpati wielded it, for 503 years, then Indra for 85 years, Soma, for 500 years, was its lord, then Varuna for 100 years, Pārtha (Arjuna himself), (who is) of 65 years, now wields it, (who is also known as) the Śvetavāhana (Rider of Chariot yoked with White Horses).

This clearly tells us that *Arjuna* was 65 years of age at this time, one year before the war, running his 66th year. In another year, by the time of war in 827 BCE, he must be running his 67th year. In the first of two options given in the previous table, *Arjuna's* age at the start of war can be seen to be 66.85 years which is nothing but the 67th year. So, clearly, **Arjuna was born on Feb 01, 893 BCE** (01.02.-892 08:20:00 IST) and *Kṛṣṇa* was born at Mathura at the exact midnight of the day of Jul 17 (17.07.-893). As the local midnight of this day started at 00:18:05 IST, **Kṛṣṇa was born on Jul 18, 894 BCE (00:18:05 IST)**. The age of *Arjuna* at the time of war (66 years) also reveals to us that *Yudhiṣṭhira* ruled *Indraprastha* for 11 years before *Arjuna* set out on his 12-year exile.

Bhīma, a year elder to *Arjuna*, was born in 894 BCE, on *Māgha* S13 day (Jan 11, 12:26:21 IST). *Yudhiṣṭhira*, 2 years elder to *Bhīma*, was born in 896 BCE, on Full Moon day of *Jyeṣṭha* month, in *Jyeṣṭhā*

Nakṣatra, at midday (May 03, 12:09:31 IST). The twins Nakula & Sahadeva were born to Mādrī, the younger queen of Pāndu, in an *Anuvatsara* year¹⁷⁹, the 4th year of a *Yuga*. As the birth-year of Arjuna (893 BCE) was the 2nd year of 657th *Yuga*, they were born in 891 BCE, two years later of Arjuna.

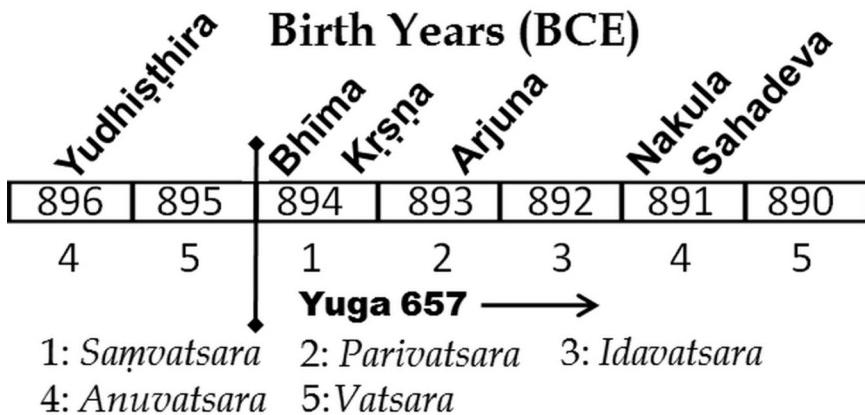


Figure 3.4
Birth Years of the *Pāñdavā* and *Kṛṣṇa*

The *Tithi* of *Yudhiṣṭhīra*'s birth is misstated in some manuscripts of *Mahābhārata* as *Pūrnā* (पूर्णा); this *Tithi* is actually *Punyā* (पुण्य), meaning an auspicious one, as becomes sufficiently clear from other similar references¹⁸⁰. This misstatement, combined with the *Tithi* names formulated much later in the *Siddhānta* period (BS 99.1-3), gives rise to the false notion that *Yudhiṣṭhīra* was born on a Śukla *Pāñcami* (S05) day. The birth of *Yudhiṣṭhīra* took place on the Full Moon Day of *Jyeṣṭha* month (May 05, 896 BCE), in *Jyeṣṭhā Nakṣatra*, at the start of local midday (*Abhijit Muhūrta*):

¹⁷⁹ अनुसंवत्सरं जाता अपि ते कुरुसत्तमा: ।

पाण्डुपुत्रा व्यराजन्त पञ्चसंवत्सरा इव ॥ MB 1.133.24

¹⁸⁰ अथ काले शुभे प्राप्ते तिथौ पुण्ये क्षणे तथा ।

आजुहाव महीपालान्भीमो राजा स्वयंवरे ॥ MB 3.54.1

ततो वृद्धान्द्रिजान्सवर्नात्मिजः सपुरोहितान् ।

समाहूय तिथौ पुण्ये प्रययौ सह कन्यया ॥ MB 3.279.2

ऐन्द्रे चन्द्रसमायुक्ते मुहूर्तेऽभिजितेष्टमे ।
दिवा मध्यगते सूर्ये तिथौ पुण्येऽभिपूजिते ॥ MB 1.114.4

(In) Indra's Month & Nakṣatra (*Jyeṣṭha* & *Jyeṣṭhā*), was the Moon conjoined; in Muhūrta Abhijit, that is the 8th one,
(When) Sun was in middle of the day; (When) Tithi was Puṇya (a holy one), the one that is honored (Full Moon Day) [*Yudhiṣṭhira* was born].

The *Pāñḍavā* were born in the *Caitraratha* forest next to a big lake known as *Indradyumna* where the *Śataśringa* peaks (a 100 peaks) and the *Kālakūṭa* peaks were visible. This region can be taken to be near to present-day Kalluwala in U.P. (29°32'54" N, 78°36'45" E), which is right next to Jim Corbett National Park.

No.	Month	First Day	Full Moon Day
Yr. 896 BCE (<i>Yudhiṣṭhira</i>)			
4	<i>Vaisākha</i>	21.03.-895	03.04.-895
5	<i>Jyeṣṭha</i>	19.04.-895	03.05.-895
6	<i>Āṣāḍha</i>	18.05.-895	02.06.-895
Yr. 894 BCE (<i>Bhīma</i>)			
12b	<i>Pauṣa</i> (<i>Ādhika</i>)	01.12.-894	14.12.-894
1	<i>Māgha</i>	30.12.-894	13.01.-893
2	<i>Phālguna</i>	29.01.-893	11.02.-893
Yr. 894 BCE (<i>Kṛṣṇa</i>)			
6	<i>Āṣāḍha</i>	27.05.-893	09.06.-893
7	<i>Śrāvana</i>	25.06.-893	09.07.-893
8	<i>Bhādrapada</i>	25.07.-893	08.08.-893
Year 893 BCE (<i>Arjuna</i>)			
1	<i>Māgha</i>	19.12.-893	03.01.-892
2	<i>Phālguna</i>	18.01.-892	01.02.-892
3	<i>Caitra</i>	17.02.-892	01.03.-892

Table 3.16
Vedic Calendars of Year 896, 894 and 893 BCE

14. Mystery of Aśvatthāmā

Aśvatthāmā, the son of Dronācārya (the guru of the Pāñdavā and the Kauravā) cursed by Kṛṣṇa after the Mahābhārata war, is a supposed mystery as he is misbelieved to be still roaming the Himalayas.

In the evening of 18th day of war, little after Bhīma shattered the thigh bones of Duryodhana in their mace fight and left him to die by himself, the 3 remaining warriors of Duryodhana's side, Aśvatthāmā, Kṛtavarmā and Kṛpācārya, approached Duryodhana. Aśvatthāmā was already greatly incensed at the unjust killing of his father Dronācārya by the Pāñdava commander-in-chief Dhṛṣṭadyumna, the son of king Drupada of Pāñcāla. Yudhiṣṭhīra, who never lied even in jest, had to utter a half-truth, at the behest of Kṛṣṇa, to get Dronācārya killed. Aśvatthāmā promised a half-dead Duryodhana that he will somehow kill the Pāñdavā that very night, deceptively and unjustly, just as his father was killed by them. Duryodhana appointed Aśvatthāmā as his commander-in-chief then and there. Subsequently, Aśvatthāmā entered the camp of remaining warriors of the Pāñdavā, mostly the Pāñcālā under the lead of Dhṛṣṭadyumna, who were all sleeping that time and slaughtered them all. The gates were guarded by Kṛtavarmā and Kṛpācārya who killed all that tried to escape. In this massacre, the five sons of Pāñdavā from Draupadī, the sister of Dhṛṣṭadyumna, along with Dhṛṣṭadyumna and all his warriors, were also killed. Already knowing the unavoidability of the destruction about to happen, Kṛṣṇa had led away the Pāñdavā far from this camp site on some pretext. Aśvatthāmā reported the carnage to a nearly-dead Duryodhana, who got angry with him for having killed the last of their children, for no one remained now to offer oblations.

The next morning, the Pāñdavā too came to know of this carnage and set out to catch Aśvatthāmā who, by that time, had gone to Vedavyāsa to heal his wounds. On seeing the Pāñdavā come in his pursuit, Aśvatthāmā invoked the ultimate weapon of Brahmā, the Brahmāstra. Arjuna, on noticing this, also did the same. Then,

Vedavyāsa and other sages, fearing great destruction at the clash of two ultimate weapons, told both of them to revoke these. *Arjuna* revoked his *Brahmāstra* but *Aśvatthāmā* didn't know how to revoke it. So, he directed his *Brahmāstra* on the yet-unborn child of *Abhimanyu*'s wife *Uttarā* and the grandson of *Arjuna*. This left the *Pāṇḍavā* even more enraged since they were now left without a heir. They bound *Aśvatthāmā* in ropes and took him to their queen *Draupadī*, who spared his life as he was a Brahmin and the son of her husbands' guru, but asked of the extremely valuable gem, that *Aśvatthāmā* bore on his forehead, to be taken away. *Kṛṣṇa*, who was highly incensed at the extremely lowly conduct of *Aśvatthāmā*, a Brahmin, in first killing the sleeping warriors and then attempting to kill an unborn child, cursed *Aśvatthāmā*¹⁸¹. The curse was for him to roam solitary for 30 years (3*10) [“*trīṇi* (3) *varṣa sahasrāṇi* (10)”, without receiving any help from anyone, with his wounds ever unhealed while experiencing all troubles that one could expect. *Kṛṣṇa* also told *Aśvatthāmā* that though the child would be born dead under the effect of *Brahmāstra* but he would return life to him and that the child would be known as *Parīkṣit*, the protected, and would live to rule till 60 years of age and that *Aśvatthāmā* would witness him growing up. This is the last mention of *Aśvatthāmā*, but due to mistranslation of 30 years as 3000 years, he is misbelieved to be roaming the Himalayas even today. This is all that's there to the mystery of *Aśvatthāmā*.

¹⁸¹ त्वां तु कापुरुषं पापं विदुः सर्वे मनीषिणः ।

असकृत्यापकर्मणं बालजीवितघातकम् ॥ MB 10.16.9

तस्मात्वमस्य पापस्य कर्मणः फलमाप्नुहि ।

त्रीणि वर्षसहस्राणि चरिष्यसि महीमिमाम् ॥ MB 10.16.10

निर्जनानसहायस्त्वं देशान्प्रविचरिष्यसि ।

भवित्री न हि ते क्षुद्रं जनमध्येषु संस्थितिः ॥ MB 10.16.11

पूयशोणितगन्धी च दुर्गकान्तरसंश्रयः ।

विचरिष्यसि पापात्मन्सर्वव्याधिसमन्वितः ॥ MB 10.16.12

वयः प्राप्य परिक्षितु वेदव्रतमवाप्य च ।

कृपाच्छ्राद्धताद्वीरः सर्वास्त्राण्युपलप्यते ॥ MB 10.16.13

विदित्वा परमास्त्राणि क्षत्रधर्मव्रते स्थितः ।

षष्ठिं वर्षाणि धर्मात्मा वसुधां पालयिष्यति ॥ MB 10.16.14

Chapter 4

Rāmāyaṇa

1331-1299 BCE



An Artist's Impression of *Rāma*, *Sītā*, *Lakṣmaṇa* and *Hanumān*

1. Introduction

Rāmāyaṇa is an old historical epic of India which narrates the history and story of the prince *Rāma* of *Ayodhyā*, the son of king *Daśaratha* of Solar line, who was exceedingly devoted to the cause of *Sanātana Dharma*. It recounts as to how he got exiled to forest for 14 years on the very day of his scheduled anointment, how his wife *Sītā* was kidnapped by the *Rākṣasa* king *Rāvaṇa* and how he discovered, overcame and killed *Rāvaṇa* and got back *Sītā*. The various events of *Rāmāyaṇa* are detailed under their own sections. Our objective here is to locate the exact period of *Rāma*.

We know that only a unique line passes through any two given points. So, if the two end-points of the *Rāmāyaṇa* timeline, that of *Rāma*'s birth and that of his return from his 14-year exile, become known, all the intermediate points of the *Rāmāyaṇa* timeline can be located accurately. With these two end points becoming known, we can accurately pinpoint the rest of the events of *Rāmāyaṇa*. It'll be noticed ahead that, as the start of *Mahā-Yuga* cycle (4174 BCE) is known to us from the time of *Mahābhārata* war (827 BCE), the birth-year of *Rāma* (1331 BCE) gets calculated in a snap.

2. The Misconception

Before we get started, I'd like to dispel a common misconception that the *Samvatsara* in *Rāma*'s time and before started with the month of *Caitra*. The verse quoted in favor of this misconception is the same one that also tells of the birth of *Rāma*:

ततो यज्ञे समाप्ते तु कृतूनां षट् समत्ययुः ।
ततश्च द्वादशे मासे चैत्रे नावमिके तिथौ ॥ RM 1.18.8

Then, from the end of the Yajña (the Horse-Sacrifice Rite), when six seasons had passed,

*From it, 12 months later, in Caitra month, on its 9th day. (*Rāma* was born)*

As detailed in the first chapter, it should be quite clear by now that the *Samvatsara*, without exception, begins only with the *Māgha* month, about the winter solstice. Some people just read this verse in isolation and conclude that since twelve months are stated to finish by the month of *Caitra*, *Caitra* must really be the first month of a *Samvatsara*. Also quoting *Āryabhaṭṭa* in their support, they forget the context completely. The mention of 12 months here, just the same as mention of 6 seasons, is only a general reference to a yearly duration from after the completion of the *Aśvamedha Yajña* (Horse-Sacrifice ritual) of king *Daśaratha*¹⁸². So, when the following verses are read before the above-given verse, the context of these 12 months (~6 seasons) becomes quite clear:

ततः काले बहु तिथे कस्मिन् चित् सुमनोहरे ।
वसन्ते समनुप्रासे राजो यद्युं मनोऽभवत् ॥ RM 1.12.1

ततः प्रणयं शिरसा तं विप्रं देव वर्णिनम् ।
यज्ञाय वरयामास संतानं अर्थं कुलस्य च ॥ RM 1.12.2

*Then, after a long time, probably in the heart-pleasing time,
At arrival of Spring, to the king (Daśaratha), a desire of Yajña occurred.
Then, bowing his head to that learned sage (Rṣayaśrṅga) of godly appearance,
For (conducting) the Yajña, (he) beseeched him, for begetting progeny for the
sake of his family line.*

पुनः प्रासे वसन्ते तु पूर्णः संवत्सरोऽभवत् ।
प्रसवार्थं गतो यद्युं हयमेधेन वीर्यवान् ॥ RM 1.13.1

अथ संवत्सरे पूर्णे तस्मिन् प्रासे तुरंगमे ।
सरय्वाः च उत्तरे तीरे राजो यज्ञो अभ्यवर्तत ॥ RM 1.14.1

*Again, at arrival of Spring, after one full year had passed,
Desirous of progeny, entered the Ritual Hall of Aśvamedha (Horse-Sacrifice)
Yajña, that brave king.*

*Then, at completion of one full year, on regaining the ritual horse,
On the northern banks of River Sarayū, the king (Daśaratha) commenced the
completion ritual (of the Aśvamedha Yajña).*

¹⁸² The *Aśvamedha Yajña* was usually started on the full moon day of *Vaisākha* or *Caitra* month and lasted a year, as recounted in the *Purāṇa*.

As a supplementary evidence of this, when *Hanumān* located *Sītā* in *Laṅkā*, about the end of the 11th month of *Mārgaśīrṣa*, *Sītā* told him that, after kidnapping her, *Rāvaṇa* had set her a time limit of 12 months out of which only 2 months remained and that these 2 months were the same as the time remaining for that *Samvatsara* to end:

स वाच्यः सम्त्वरस्व इति यावत् एव न पूर्यते ।
 अयं संवत्सरः कालः तावधि हि मम जीवितम् ॥ RM 5.37.7
 वर्तते दशमो मासो द्वौ तु शेषौ प्लवग्माम ।
 रावणेन नृशंसेन समयो यः कृतो मम ॥ RM 5.37.8

He (Rāma) is to be told to make haste till it (this period of remaining 2 months) is not completed,

*Of this present *Samvatsara*, the time that remains (to its completion), for this (time) only will I live.*

*It's the 10th month (of time set for me), 2 months are left, O Monkey, *Rāvaṇa*, the terrible, has set this time limit for me.*

The only *Samvatsara* ending month from after the *Mārgaśīrṣa* month is that of *Pauṣa* or *Pauṣa* (*Ādhika*). Quite clearly, the month pair that *Sītā* was talking about was either {*Mārgaśīrṣa*, *Pauṣa*} or {*Pauṣa*, *Pauṣa* (*Ādhika*)}. So, it should be firmly known that a *Samvatsara* starts only and only with the month of *Māgha*, and never with *Caitra* or any other month.

3. Birth of *Rāma*

All the talk of *Rāma* being born hundreds of thousands of years ago is a behemoth misunderstanding fomented by an utterly wrong interpretation of the *Mahā-Yuga* cycle as of 4,320,000 years. As clearly established in the first chapter, the duration of a *Mahā-Yuga* is only 120 *Samvatsarā* and the base date of our present age (7th *Manvantara*) is Jan 21, 4174 BCE.

3.1 The Birth-Year

It is undisputedly known that *Rāma* was born at the end of 24th *Tretā-Yuga* (last year of the *Tretā-Yuga* of 24th *Mahā-Yuga*), as stated in various *Purāṇa* and the *Mahābhārata*:

चतुर्विंशे युगे रामो वसिष्ठेन पुरोधसा ।
सप्तमो रावणस्यार्थे जज्ञे दशरथात्मजः ॥ MP 47.242

*In 24th (Mahā) Yuga, Rāma, with Vasiṣṭha as family-priest,
Was the 7th (Avatāra of Viṣṇu), (effected) for Rāvaṇa's purpose (his killing),
and he was the son of Daśaratha.*

संधौ तु समनुप्राप्ते त्रेतायां द्वापरस्य च ।
रामो दाशरथिर्भूत्वा भविष्यामि जगत्पतिः ॥ MB 12.348.16

*At the arrival of the juncture, of a Tretā-Yuga and a Dvāpara-Yuga,
As Rāma of Daśaratha, will I take birth, and become the lord of Earth.*

The scheme of this 24th *Mahā-Yuga*, as calculated from the start of *Mahā-Yuga* on Jan 21, 4174 BCE is provided in the table below:

Scheme of 24 th <i>Mahā-Yuga</i> (1414 BCE - 1295 BCE)				
No.	Sub Yuga	Duration	Start Year	End Year
1	<i>Kṛta-Yuga</i>	48 Yrs.	1414 BCE	1367 BCE
2	<i>Tretā-Yuga</i>	36 Yrs.	1366 BCE	1331 BCE
3	<i>Dvāpara-Yuga</i>	24 Yrs.	1330 BCE	1307 BCE
4	<i>Kali-Yuga</i>	12 Yrs.	1306 BCE	1295 BCE

Table 4.1
Scheme of 24th *Mahā-Yuga*

From this table, the last year of 24th *Tretā-Yuga* can be noticed to be 1331 BCE and this 1331 BCE itself is the very birth year of *Rāma*. Calculating the birth-year of *Rāma* is that simple. This placement of *Rāma* is also in complete agreement with the synchronized genealogical lists of Solar Line and Lunar Line, as provided in the *Matsya Purāṇa* (Chapter 21+):

Gen	Year	(C) Solar Line (<i>Ayodhyā</i>)	(R) Lunar Line (<i>Madhu</i>)
100	-1302	<i>Rāma</i> (n) old-age son of Daśaratha, born 1331 BCE	<i>Purabasa (f) Madhu</i> (hb) <i>Lavaṇa</i> , from <i>Kuṇḍhīnasi</i> , a Rākṣasa girl
101	-1273	<i>Kuśa</i>	<i>Puruḍvāna</i> , <i>Puruhotra</i> (w) <i>Vaidarbhi Bhadrāvatī</i>
102	-1244	<i>Atithi</i>	<i>Jantu</i> , <i>Āyu</i> , <i>Aṁśu</i> (w) <i>Aikṣavākī</i>
103	-1215	<i>Niṣadha</i>	<i>Sāttvata</i> (w) <i>Kausalya</i> (n) reclaimed Mathura
104	-1186	<i>Nala</i>	<i>Devavrddha</i> (w) <i>Parṇāśā</i>
105	-1157	<i>Nabha</i>	<i>Babhrū</i> (w): (d) of <i>Kaṅka</i>
106	-1128	<i>Puṇḍarīka</i>	<i>Bhajamāna</i> (b) <i>Vṛṣṇi I</i> , <i>Kukura</i> , <i>Kambalabarhiṣa</i> , <i>Andhaka</i> , <i>Mahābhoja</i> , <i>Bhajīn</i> , <i>Divyam</i> , <i>Śāśi</i>
107	-1099	<i>Kṣemadhanvā</i>	<i>Vidūratha</i> (cb) <i>Vṛṣṇi II</i> , son of <i>Kukura</i>
108	-1070	<i>Devānīka</i>	<i>Śūra</i>
109	-1041	<i>Ahinagu</i> / <i>Ahinaka</i> / <i>Ahina</i>	<i>Śoṇāśva</i>
110	-1012	<i>Prasūrūta</i>	<i>Śamī</i> / <i>Śani</i>
111	-983	<i>Susamdhī</i>	<i>Vṛṣṇi III</i> (w) <i>Gāndhārī</i> , <i>Mādrī</i>
112	-954	<i>Amarṣa</i>	<i>Devamīḍhuṣa</i> (b) <i>Anamitra</i>
113	-925	<i>Sahasvāna</i>	<i>Śurasena</i> (w) <i>Bhojyā</i>
114	-896	<i>Viśvabhava</i>	<i>Vasudeva</i> (b) <i>Devabhāga</i>
115	-867	<i>Br̥hadbala</i> **	<i>Kṛṣṇa</i> (b) <i>Balarāma</i>
** Both <i>Br̥hadbala</i> & <i>Śrutāyu</i> were killed in the <i>Mahābhārata</i> war.			

Table 4.2
Kings of Solar Line and Lunar Line (of *Vṛṣṇi*) #Gen. 100-115

As we now know the *Mahābhārata* war to have happened in 827 BCE and *Kṛṣṇa* of Lunar line to have been born in 894 BCE, *Kṛṣṇa* is assigned to Gen.115 (868 BCE). It's also known from the *Mahābhārata* text that the old king *Br̥hadbala* of Kosala (Solar line) was killed by *Abhimanyu*, the son of *Arjuna*, in the *Mahābhārata* war:

स कोसलानां भर्तारं राजपुत्रं वृहद्बलम् ।
हृदि विव्राथ बाणेन स भिन्नहृदयोऽप्तत् ॥ MB 7.47.22

*That Kausala Country Lord, the royalty known as Br̥hadbala,
His heart pierced by an arrow (of Abhimanyu), (life) separated from heart, he
fell down.*

As *Bṛhadbala* was old and belonged to the same generation as of *Kṛṣṇa* and *Yudhiṣṭhīra*, he too is assigned to Gen.115. It also becomes known from *Matsya Purāṇa* that *Śrutāyu*, another king of Solar line who ruled a division of *Kosala*, was also killed in the *Mahābhārata* war¹⁸³. This *Śrutāyu* was likely a cousin of *Bṛhadbala* who participated in the *Mahābhārata* war along with him. So, counting back the known generations, up to *Lavaṇa*¹⁸⁴ on the Lunar side and up to *Rāma* on the Solar side, both *Lavaṇa* and *Rāma* can be known to have existed in Gen.100 (1303 BCE). So, *Rāma* must have been born about 1332 BCE, near the start of his previous generation (Gen.99). As this genealogically worked out birth-year of *Rāma* is in complete agreement with that (1331 BCE) worked out by the evidence of *Mahā-Yuga* cycle, the generation of *Rāma* stands confirmed as Gen.100 (1303 BCE). As for 1331 BCE being the exact birth-year of *Rāma*, it can be verified by the various planetary positions provided in the *Rāmāyana* text for different stages of *Rāma*'s life. Now, the time of birth of *Rāma* and his brothers is indicated by the following verses of *Rāmāyana*:

¹⁸³ तस्य आत्मजः चन्द्रगिरिः भानुचन्द्रः ततोऽभवत् ।

श्रुतायुः अभवत् तस्माद् भारते यो निपातितः ॥ MP 11.55

¹⁸⁴ *Lavaṇa* was a son of king *Madhu* of Lunar race from *Kumbhīnasi*, a *Rākṣasa* girl and a half-sister of *Rāvaṇa*. Being aggrieved at the killing of his maternal uncle *Rāvaṇa* by *Rāma*, he sent *Rāma* a fight challenge and was killed in return by *Śatrughna*, a younger brother of *Rāma*. *Śatrughna*, much against his wish of staying with *Rāma*, was ordered by *Rāma* to settle down in *Madhuvana* (present day Mathura) that was so captured from *Lavaṇa*. *Sāttvata*, in 4th generation of *Lavaṇa*, is stated to have reclaimed Mathura.

ततो यज्ञे समाप्ते तु कृतूनां पृथ्समत्ययुः ।
 ततश्च द्रादशे मासे चैत्रे नावमिके तिथौ ॥ RM 1.18.8
 नक्षत्रेऽदितिदैवत्ये स्वोऽन्नसंस्थेषु पञ्चमु ।
 प्रहेषु कर्कटे लग्ने वाक्पताविन्दुना सह ॥ RM 1.18.9
 प्रोद्यमाने जगन्नाथं सर्वलक्षणसंयुतम् ।
 कौसल्याऽजनयत् रामं सर्वलक्षणसंयुतम् ॥ RM 1.18.10
 मुच्ये जातस्तु भरतो मीनसंग्रहे प्रसन्नधीः ।
 सार्पे जातौ च सौमित्री कुरुक्षेऽच्युक्तिरेखौ ॥ RM 1.18.15

Then, from the end of the Yajña (the Horse-Sacrifice Rite), when six seasons had passed,

*From it, 12 months later, in the month of Caitra, on its 9th day.
 In the Nakṣatra of Goddess Aditi (Punarvasu Nakṣatra), when in their exaltation were situated the five (planets),
 The planet, in the cancer ascendant, was Jupiter, along with Moon.
 Came forward the lord of universe, who is bowed to by all the worlds,
 (The queen) Kausalya gave birth to Rāma, endowed with all good omens.
 In Pusya Nakṣatra was born the Bharata, under Pisces Ascendant, (who was)
 of pure intellect,
 In Sarpa (Āśleṣā) Nakṣatra were born the twin sons of Sumitra (Lakṣmana and Śatrughna), in Ascendant conjoined with Sunrise.*

We now know that the 12-Sign Zodiac became prevalent in India only after 149 CE when the first *Yavanī* astrological text was translated in *Śaṃskrt* by *Yavaneśvara*. The ancient Indians only used the *Nakṣatra* Zodiac. So, the verses 1.18.9 and 1.18.15 given above that mention *Rāma* to be born under the Cancer ascendant (with five planets exalted) and *Bharata* to be born under the Pisces ascendant are clearly later interjections and unoriginal. Also, it's plain common sense that, if the 12-Sign Zodiac would have been prevalent during the age of *Rāma*, it should have found at least a passing mention in the copious text of *Mahābhārata* that was composed about 475 years later. But there is no mention of the 12-Sign Zodiac in the *Mahābhārata*, wherein only the *Nakṣatras* are talked about. Also, there is no break of continuity in our reading the *Rāmāyaṇa* without these spurious verses. In fact it feels more natural to read together the verses 1.18.8 and 1.18.10, without the verse 1.18.9 interposed between them. Try it yourself:

ततो यज्ञे समाप्ते तु कृतूनां षट्समत्ययुः ।
 ततश्च द्वादशे मासे चैत्रे नावमिके तिथौ ॥ RM 1.18.8
 प्रोद्यमाने जगन्नाथं सर्वलोकनमस्कृतम् ।
 कौसल्याऽजनयत् रामं सर्वलक्षणसंयुतम् ॥ RM 1.18.10

Then, from the end of the Yajña (the Horse-Sacrifice Rite), when six seasons had passed,

*From it, 12 months later, in the month of Caitra, on its 9th day.
 Came forward the lord of universe, who is bowed to by all the worlds,
 (The queen) Kausalya gave birth to Rāma, endowed with all good omens.*

So, quite clearly, these 2 spurious verses (1.18.9 and 1.18.15) are later interjections by some *Sūta* in the post-*Mahābhārata* period who had a manuscript of *Rāmāyaṇa* and who was trying to date *Rāma*'s birth himself. Unfortunately, it seems that his manuscript got copied around the most. These 2 verses are clearly inadmissible towards the birth details of *Rāma*.

Now, the birth-day of *Rāma* is undisputedly known as *Caitra* S09. Whatever be the *Nakṣatra* on this day was the actual birth *Nakṣatra* of *Rāma*, if not *Punarvasu*. In *Rāmcaritamānas*, *Gosvāmī Tulasīdāsa* mentions the day of birth of *Rāma*, as well as his birth-time as being about noon, but skips mentioning the *Nakṣatra*:

नौमी तिथि मधु मास पुनीता ।
 सुकल पच्छ अभिजित हरिप्रीता ॥ RCM 1.191.1
 मध्यदिवस अति सीत न घामा ।
 पावन काल लोक विश्रामा ॥ RCM 1.191.2

*9th was the day, Madhu (Caitra) was the month, the lovely month,
 Bright Fortnight & Abhijit Muhūrta it was, the favorite of the lord Viṣṇu.
 (Time was) About midday, neither cold, nor hot (was the season),
 Auspicious time it was, giving bliss to all worlds.*

To know any further details, first the Vedic calendar for 1331 BCE, the birth-year of *Rāma*, needs to be computed.

3.2 Birth-Year Calendar

Using the mean offset formulae provided in the first chapter, these are the preliminary calculations for 1331 BCE:

$$\begin{aligned}
 \text{Manvantara-Year(1331)} &= 4175 - 1331 = 2844 \\
 Y_A &= \text{Manvantara-Year(1331)} / 5 = 568.8 \\
 Y &= \text{CEILING}(Y_A) = 569 \\
 Y_Y &= \text{CEILING}((1 - (Y - Y_A)) / 0.2) = \text{CEILING}(0.8 / 0.2) = 4 \\
 M_{Y_A} &= \text{Manvantara-Year(1331)} / 120 = 23.7 \\
 M_Y &= \text{CEILING}(M_{Y_A}) = 24 \\
 M_{Y_Y} &= \text{CEILING}((1 - (M_Y - M_{Y_A})) * 120) = \text{CEILING}(0.7 * 120) = 84
 \end{aligned}$$

Where X = General Year (BCE/CE), Y_A = Actual *Yuga*, Y = *Yuga* No., Y_Y = *Yuga* Year, M_{Y_A} = Actual *Mahā-Yuga*, M_Y = *Mahā-Yuga* No., M_{Y_Y} = *Mahā-Yuga* Year

These calculations tell us that 1331 BCE, the year of birth of *Rāma*, was placed in the:

- 1) 2844th Manvantara-Year, as counted from Jan 21, 4174 BCE
- 2) 569th *Yuga* (of 5 years) in its 4th year, a year of 12 months with no intercalary lunar month.
- 3) 24th *Mahā-Yuga* in its 84th year which means the last year of 24th *Tretā-Yuga* ($84=48+36$)

Calculating further, we get:

$$\begin{aligned}
 \text{Adjustment(569)} &= \text{QUOTIENT}(569/6) - \text{QUOTIENT}(569/60) \\
 &\quad + \text{QUOTIENT}(569/120) \\
 &= 89 \\
 \text{Adjustment(569-1)} &= \text{QUOTIENT}(568/6) - \text{QUOTIENT}(568/60) \\
 &\quad + \text{QUOTIENT}(568/120) \\
 &= 89 \\
 \text{Month-Correction(569)} &= \text{Adjustment(569)} - \text{Adjustment(569-1)} = 0 \\
 \text{Ending Months(569)} &= 62 * 569 - \text{Adjustment(569)} \\
 &= 35,189 \\
 \text{Yuga Months(569)} &= 62 - \text{Month-Correction(569)} = 62
 \end{aligned}$$

These calculations tell us that the 569th *Yuga* was of 62 months and that at its end, a full 35,189 lunar months had elapsed since Jan 21, 4174 BCE, the base date of *Manvantara*.

Calculating still further, we get:

$$\begin{aligned}\text{Yuga-End Offset(569)} &= 569 * 4.681440675 - \text{Adjustment}(569) * 29.5305882 \\ &\quad + 569 * 0.001472283 - 1.35752743 \\ &= 34.997595869\end{aligned}$$

$$\begin{aligned}\text{Year-End Offset(569,4)} &= \text{Yuga-End Offset(569)} - 18.6546466 \\ &\quad + \text{Month-Correction}(569) * 29.5305882 \\ &= 34.997595869 - 18.6546466 + 0 \\ &= 16.342949269\end{aligned}$$

These final calculations tell us that the last new moon of the 569th *Yuga* was about 34.99 days ahead of the nearest true winter solstice point and that the last new moon of the 4th year of this 569th *Yuga* (1331 BCE) was about 16.34 days ahead of the nearest true winter solstice point. As the relevant winter solstice point about the end of 1331 BCE fell on “01.01.-1329 17:50:34 IST”, the last NMP (New Moon Point) of this year (1331 BCE) should be 16.34 days later on Jan 18, 1330 BCE (“18.01.-1329 02:04:24 IST”). On checking, we find the last NMP at “18.01.-1329 15:35:02 IST”. Knowing this, the Vedic calendar of 1331 BCE can now be drawn up without much difficulty, by backcalculating the months:

No.	Month	First Day	Full Moon Day
2	<i>Phālguna</i>	28.02.-1330	15.03.-1330
3	<i>Caitra</i>	30.03.-1330 (NMP: 28.03.-1330 17:15 IST)	13.04.-1330
4	<i>Vaisākha</i>	28.04.-1330	13.05.-1330

Seasons (*Rtu*) are tied only to actual equinoxes and solstices:

W.S.: 01.01.-1330 11:58:29, V.E.: 02.04.-1330 17:20:42

S.S.: 06.07.-1330 00:24:11, A.E.: 05.10.-1330 08:34:51

Table 4.3
Vedic Calendar of Birth-Year of *Rāma* (1331 BCE)

3.3 The Birth-Day

The verse 1.18.8, as also noted previously in section 3.1, states that *Rāma* was born on *Caitra Śukla Navamī* (S09) which is the 9th day of *Caitra* month. From the Vedic calendar of 1331 BCE that we just computed, this day can be read out straight, counting on fingertips, as **Apr 07, 1331 BCE** (12:05 IST), a day of *Pūrvā Phālgunī Nakṣatra* (Q4 at Noon). The *Nakṣatra* is not required to be known beforehand, it's sufficient to know only the month and the *Tithi* of month to get the *Nakṣatra*.

Citing the spurious verse of 1.18.9, it will now be argued by some that five planets were exalted at the time of *Rāma*'s birth and that he was born in the *Punarvasu Nakṣatra*. But, as can be seen from the planetary positions of this day, neither were five planets exalted on Apr 07, 1331 BCE, nor was *Rāma*'s birth *Nakṣatra* the *Punarvasu*. As also said earlier, the spurious verse of 1.18.9 looks to be the handiwork of some *Sūta* who must have been a devout worshipper of *Rāma* and who must have thought that the more the number of exalted planets for *Rāma*, the better. But, it seems, he exalted only five planets instead of all seven, to also keep the things a little believable. From the point of view of astrology, a man who got exiled for 14 years on the very day of his greatest possible benefit (anointment as the next king) and who had to live practically his whole life without his spouse, has to have major horoscope ills in the 10th house and the 7th house respectively. One look at the horoscope of *Rāma* (Apr 07, 1331 BCE, 12:05 IST, Ayodhya, Vedic *Ayanāṁśa*) instantly highlights these afflictions to his 10th house and the 7th house.

But it's not out of sympathy for *Rāma*, for his suffering an exile of 14 years, that he is so greatly worshipped in India. It is his abounding in all great qualities and his excellence at leading a firm principled life that he is so worshipped. The king *Daśaratha* has recounted these qualities of *Rāma* to his queen *Kaikeyī*, when she asked him the boon of sending *Rāma* into exile:

सत्येन लोकान् जयति दीनान् दानेन राघवः ।
 गुरुन् शुश्रूषया वीरो धनुशा युधि शात्रवान् ॥ RM 2.12.29
 सत्यं दानं तपस्त्यगो वित्रता शौचमार्जवम् ।
 विद्या च गुरुशुश्रूषा ध्रुवाण्येतानि राघवे ॥ RM 2.12.30
 तस्मिन्नार्जव सम्पन्ने देवि देवोपमे कथम् ।
 पापमाशंससे रामे महर्षि सम तेजसि ॥ RM 2.12.31

*Rāma conquers by virtue the world, the poor by the charity,
 The preceptors by service, the brave by his bow and by battle the enemy.
 Truthfulness, charity, austerity, sacrifice, purity, straight forwardness,
 Knowledge and service to elders, extremely firm are these (qualities) in Rāma.
 To him, endowed with honesty, O Queen, and who is equal to a god, say,
 How do you wish to harm that Rāma, who (also) has the aura of a great sage?*

As for *Punarvasu* not being the birth Nakṣatra of *Rāma*, it can also be inferred by other verses. It's mentioned that the king *Daśaratha* decided to anoint *Rāma* as crown prince, in the month of *Caitra*, also the month of *Rāma*'s birth, on a day when the next day was to be in *Puṣya* Nakṣatra:

चैत्रः श्रीमानयं मासः पुण्यः पुष्पितकाननः ।
 यौवराज्याय रामस्य सर्वमेवोपकल्प्यताम् ॥ RM 2.3.4
*"Caitra, the auspicious month, it is, the holy one in which the flowers bloom;
 for the anointment of Rāma, let all arrangements be made."*

This means that, on this day of *Daśaratha* decision, the Nakṣatra was *Punarvasu*, the one previous to *Puṣya*. If *Punarvasu* Nakṣatra would have been the birth Nakṣatra of *Rāma*, the eldest prince who is about to be anointed crown-prince next day, then some celebratory activity of this day would have been mentioned in *Rāmāyaṇa*, especially so when so many other minute details of this day are mentioned. Also, the *Brahmins* would have been performing the *Svastivācana* (singing of benedictory hymns to gods for invoking blessings) for *Rāma* on his birth Nakṣatra, just as it's stated in the *Mahābhārata* to be performed for *Arjuna* on his birth Nakṣatra day (his father *Pāndu* died later on this day):

पूर्णे चतुर्दशे वर्षे फाल्गुनस्य च धीमतः ।
तदा उत्तरफल्गुन्यां प्रवृत्ते स्वस्तिवाचने ॥ MB 1.134.11

At (near) full completion of 14 years of Phālguna (Arjuna), the wise one, When it was (the day of) Uttarā Phalgunī Nakṣatra, started the Svastivācana (for Arjuna, in his birth Nakṣatra). [Born at the start of Uttarā Phalgunī]

Obviously, as *Punarvasu* was not *Rāma's* birth Nakṣatra, no *Svastivācana* for him happened on this day when *Daśaratha* decided to anoint him. So, it can be firmly known now that the birth Nakṣatra of *Rāma* was *Pūrvā Phālgunī Nakṣatra* (Q4), as also mentioned already.

4. Exile & Return of *Rāma*

Now, the first end-point (the birth-date of *Rāma*) of the *Rāmāyaṇa* timeline has been established conclusively. Before unraveling the other events in the middle, the second end-point, that of *Rāma's* return from his 14-year exile, needs to be verified. But to be able to do that, first the date of *Rāma's* exile needs to be located.

4.1 The Exile

As also stated earlier, the king *Daśaratha*, on a day of *Punarvasu Nakṣatra* in the *Caitra* month, decided to anoint *Rāma* as crown prince on the next day, in *Puṣya Nakṣatra*:

चैत्रः श्रीमानयं मासः पुण्यः पृष्ठितकाननः ।
यौवराज्याय रामस्य सर्वमेवोपकल्प्यताम् ॥ RM 2.3.4
श्व एव पुष्यो भविता श्वोऽभिषेच्यस्तु मे सुतः ।
रामो राजीवताम्राक्षो यौवराज्य इति प्रभुः ॥ RM 2.4.2

Caitra, the auspicious month, it is, the holy one in which the flowers bloom; for the anointment of Rāma, let all arrangements be made.

Tomorrow, Puṣya it will be, tomorrow will be the anointment of my son, Rāma, of eyes like red lotus, can be made crown-prince, O Lord"

When, on this exile day in *Caitra*, *Rāma* went to bid farewell to his mother *Kausalya*, he was nearly fully 18 years old. A heart-broken *Kausalya* tells *Rāma*:

दश सप्त च वर्षाणि तव जातस्य राघव ।
असितानि प्रकान्धन्त्या मया दुहृत्प परिक्षयम् ॥ RM 2.20.45

17 years (have passed) since I gave birth to you, O Rāghava (Rāma), Waiting in hope that my troubles (on account of her neglect by Daśaratha whose favorite was Kaikeyī, the 3rd queen) will be over (through your becoming the king-in-waiting).

The 18th year from 1331 BCE, which started in 1314 BCE, completes in 1313 BCE, the Vedic calendar for which is as follows:

No.	Month	First Day	Full Moon Day
1	<i>Māgha</i>	12.01.-1312	25.01.-1312
2	<i>Phālguna</i>	10.02.-1312	24.02.-1312
3	<i>Caitra</i>	11.03.-1312 (NMP: 09.03.-1312 16:59 IST)	25.03.-1312
4	<i>Vaisākha</i>	09.04.-1312	23.04.-1312

Seasons (*Rtu*) are tied only to actual equinoxes and solstices:

W.S.: 01.01.-1312 21:06:00, V.E.: 02.04.-1312 01:59:45

S.S.: 05.07.-1312 08:54:22, A.E.: 04.10.-1312 17:34:31

Table 4.4
Vedic Calendar of *Rāma*'s Exile Year (1313 BCE)

As the day of *Rāma*'s exile was the *Puṣya Nakṣatra* day of the *Caitra* month of 1313 BCE, it can be checked from the above calendar that it was **Mar 16, 1313 BCE**, the 6th day of *Caitra* (*Caitra Śaṣṭhī* / *Caitra S06*), when the *Nakṣatra* was *Puṣya*. So, *Rāma*, born on *Caitra S09*, took to his exile from about the midday of *Caitra S06*, just about 03 days short of completing his 18th year.

Given below are the planetary positions stated for this day of *Rāma*'s exile (**Mar 16, 1313 BCE**), which are an exact match:

त्रिशङ्कुः लोहिताङ्गः च वृहस्पति बुधावपि ।
 दारुणा: सोमं अभ्येत्य ग्रहाः सर्वे व्यवस्थिताः ॥ RM 2.41.11
 नक्षत्राणि गत अचीषि ग्रहाः च गत तेजसः ।
 विशाखाः च, सधूमाः च नभसि प्रकाशिरे ॥ RM 2.41.12

*Triśaṅku (Saturn, or Venus) and Mars, Jupiter and Mercury as well,
 Assuming harshness with Moon, are these planets, all positioned such.
 Nakṣatrā ceased to twinkle, the planets lost their strength,
 Even Viśākhā Nakṣatra (had set); (while) Ketu shone in the sky.*

Note: Jupiter (Ju) has a slant aspect to Moon (Mo), Mercury (Me) a 7th position / peripheral aspect. Mars (Ma) is in Rohiṇī, the favorite of Moon. Planet Triśaṅku likely represents Saturn (Sa) giving a direct aspect. Viśākhā (Nakṣatra of Kosala country) had just set at Sunrise.

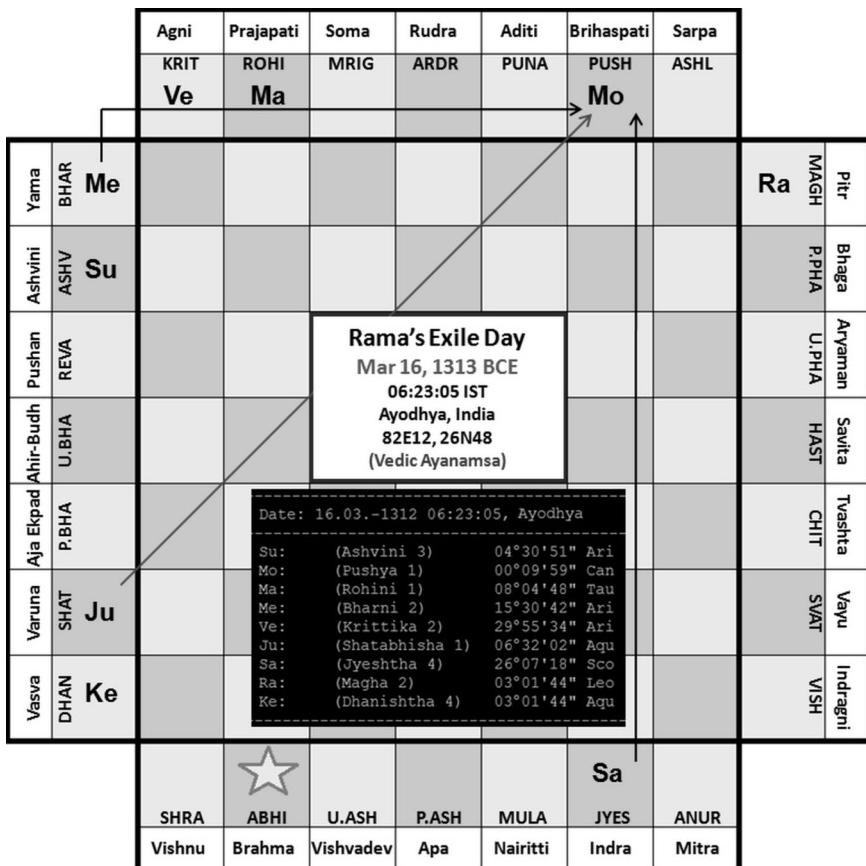


Figure 4.1
 SBC of the day of Rāma's Exile

When *Rāma* came over to tell *Sītā* of his impending exile, she also noted that the day was of *Puṣya Nakṣatra* that is lored by *Bṛhaspati* (the preceptor of gods):

अद्य बार्हस्पतः श्रीमान् युक्तः पुष्येण राघव ।
प्रोच्यते ब्राह्मणैः प्राज्ञैः केन त्वमसि दुर्मनाः ॥ RM 2.26.9

*Today, of Jupiter, is the auspicious day, (that is) joined with *Puṣya Nakṣatra*, O Rāghava!*

So say the Brahmins, the learned ones; what for you look so sullied?

4.2 Return from Exile

As *Rāma*'s exile period began in the middle of the 6th day of *Caitra* month, his exile was set to complete on the 7th day of *Caitra* (*Caitra S07*) of the 14th year. Counting 14 years from the day of exile on Mar 16, 1313 BCE, it was the year 1299 BCE when *Rāma* reentered the city of *Ayodhyā* on *Caitra S07* and was finally crowned the king in *Abhijit Muhūrta* (about noon). After the war, *Rāma*, *Sītā* and *Lakṣmaṇa* returned to the hermitage of the sage *Bhāradvāja* at *Prayāga*¹⁸⁵ in the *Puspaka* aircraft on the 5th day of *Caitra* month of 1299 BCE. *Sugrīva*, *Vibhīṣaṇa*, *Hanumān* and other top generals of *Sugrīva* and *Vibhīṣaṇa*, wanting to witness the coronation of *Rāma* and to also see the *Ayodhyā* city, accompanied him back:

पूर्णे चतुर्दशे वर्षे पञ्चम्यां लक्ष्मणाग्रजः ।
भरद्वाजाश्वमं प्राप्य ववन्दे नियतो मुनिम् ॥ RM 6.124.1

*At (near) full completion of 14 years, on the fifth day (of *Caitra* month), the elder brother of *Lakṣmaṇa*,*

*Reached the hermitage of (sage) *Bhāradvāja*, and offered salutations on coming near to the sage.*

The *Padma Purāṇa* gives the *Tithi* correct but the month incorrect:

¹⁸⁵ Modern-day Allahabad, at confluence of rivers *Gangā* and *Yamuna*

पूर्णे चतुर्दशे वर्षे पञ्चम्यां माधवस्य तु ।
भरद्वाजाश्रमे रामः सगणः समुपाविशत् ॥ PP 5.36.74
नन्दिग्रामे तु षष्ठ्यां स भरतेन समागतः ।
सप्तम्यां अभिपिक्तोऽसाव अयोध्यायां रघुद्वहः ॥ PP 5.36.75

*At Full completion of 14 years, on 5th of Mādhaba (Vaisākha) month,
At Bharadvāja's hermitage, Rāma, along with deputies, arrived.
At Nandigrāma, on 6th (of Vaisākha), Bharata he met,
On 7th he was anointed, in Ayodhyā, that scion of Raghu.*

Note: The story of *Rāma*, as recounted in the *Padma Purāṇa* (5.36), has some specific dates that I have examined but have found most of them unreliable. For example, it states¹⁸⁶ that *Sītā* was only 06 years old at the time of her marriage which is quite absurd and in direct contradiction of *Rāmāyaṇa* itself that states *Sītā* as being 12 years old at the time of marriage. Also, it mentions *Rāma* reentry in *Ayodhyā* to be on the *Vaisākha* S07 day but which, counting from his exile date, should be the *Caitra* S07 day. The exact day of his reentry was **Apr 11, 1299 BCE**, a *Caitra* S07 day by the Vedic calendar, as we will see ahead shortly. So, the *Rāmāyaṇa* dates of *Padma Purāṇa* cannot be relied upon as primary evidence.

Now, while *Rāma* stayed with sage *Bhāradvāja* at *Prayāga* for a day, he told *Hanumān* to rush to *Nandigrāma*, a village on the way to *Ayodhyā*, from where *Bharata* ruled the kingdom as *Rāma*'s deputy. *Rāma* told *Hanumān* to break the news of his return to *Bharata* and to minutely study his facial expressions before returning to report back to him immediately. Here, *Rāma* mentioned to *Hanumān* that if *Bharata* is found to have developed even the slightest of coveting for the kingdom of *Ayodhyā*, then he will be allowed to enjoy it uninterruptedly. *Hanumān* flew to *Nandigrāma* and gave *Bharata* the news of *Rāma*'s return upon which *Bharata* fainted with happiness. On regaining consciousness, when *Bharata* asked to be taken to *Rāma* immediately, *Hanumān* told him to wait until the next day, the 6th day of *Caitra* and a day of *Puṣya Nakṣatra*, when *Rāma* was scheduled to come to *Nandigrāma* to meet him:

¹⁸⁶ ईश्वरस्य धनुर्भग्नं जनकस्य गृहे स्थितम् ।
रामः पञ्चदशे वर्षे षट् वर्षा अथ मैथिलीम् ॥ PP 5.36.15

तं गङ्गां पुनरासाद्य वसन्तं मुनिसंनिधौ ।
अविन्द्रं पुष्ययोगेन श्वो रामं द्रष्टमर्हसि ॥ RM 6.126.55

He, returning to the banks of Gaṅgā, is now staying (today) in the presence of the sage (Bhāradvāja), Without any obstacles, in Puṣya Nakṣatra tomorrow, you will see Rāma.

From the Vedic calendar of the year 1299 BCE given below, counting the 6th day of *Caitra* on fingertips, we get **Apr 10, 1299 BCE** (10.04.-1298) as the day when *Rāma* met *Bharata* in *Nandīgrāma*. As *Hanumān* rightly noted to *Bharata*, it was indeed a day of the *Puṣya Nakṣatra*. On the still next day, **Apr 11, 1299 BCE**, the 7th day of *Caitra* (*Caitra S07*), *Rāma* and *Bharata* entered the *Ayodhyā* city together where after *Rāma* was finally anointed the king that noon itself, in the *Abhijit Muhūrta*.

No.	Month	First Day	Full Moon Day
1	<i>Māgha</i>	05.02.-1298	19.02.-1298
2	<i>Phālguna</i>	07.03.-1298	20.03.-1298
3	<i>Caitra</i>	05.04.-1298 (NMP: 04.04.-1298 05:09 IST)	19.04.-1298
4	<i>Vaisākha</i>	05.05.-1298	18.05.-1298

Seasons (*Rtu*) are tied only to actual equinoxes and solstices:
WS: 01.01.-1297 12:26:46, VE: 02.04.-1298 11:15:00
SS: 05.07.-1298 18:11:51, AE: 05.10.-1298 03:07:46

Table 4.5
Vedic Calendar of Year 1299 BCE

So, from the birth-day of *Rāma* (**Apr 07, 1331 BCE**), the first end-point of *Rāmāyaṇa* timeline, we are able to locate the exact date of his exile as **Mar 16, 1313 BCE**. From this exile date, we are further able to locate and verify the second end-point of *Rāmāyaṇa* timeline, that of *Rāma*'s return to *Ayodhyā* on **Apr 11, 1299 BCE**. The timeline of *Rāmāyaṇa* thus stands fully validated and all that remains to be discovered now are the intermediate time-points where other major events happened.

5. Marriage of Rāma

Once, when *Rāma* was running his 16th year, the sage *Viśvāmitra* arrived in *Ayodhyā* and asked of king *Daśaratha* to send *Rāma* and *Lakṣmana* along with him so that they could kill the *Rākṣasā* creating trouble in his *Yajña*. *Daśaratha*, scared for the lives of his teenage sons, tried to placate the sage to consider taking him instead of *Rāma*. He said that *Rāma* was not yet fit for battle with the mighty *Rākṣasā* as he was still to turn 16 years old:

ऊन पोडश वर्षो मे रामो राजीव लोचनः ।
न युद्ध योग्यतां अस्य पश्यामि सह राक्षसैः ॥ RM 1.20.2

*A little less than 16 years only is my Rāma, of lotus eyes,
Not fit for battle is he, as I see, with the Rākṣasā.*

Despite his reservations, *Daśaratha* had to send the princes along with *Viśvāmitra*, even as his own preceptor *Vasiṣṭha* too advised him to comply with the request of the great sage¹⁸⁷. *Viśvāmitra* took the princes to his hermitage where he trained them further in weaponry and provided them many advanced weapons of the gods. *Rāma* subsequently killed many *Rākṣasā*, including a *Rākṣasī* by name of *Tāḍakā/Tāṭakā*, who used to trouble and kill the sages. After some time, the sage *Viśvāmitra* then took them to the *Svayamvara*¹⁸⁸ of *Sītā* organized by king *Janaka* of *Mithilā*. *Rāma* won the *Svayamvara* by fulfilling the condition of stringing the bow of *Śiva*, before it broke in two by his strength. Thereafter, king *Daśaratha* was invited by king *Janaka* to complete the marriage ceremony. The marriages of all his 04 sons, namely *Rāma*, *Lakṣmana*, *Bharata* and *Śatrughna*, were finalized respectively with *Sītā*, *Urmilā*, *Māṇḍavī* and *Śrutakīrti*, of which the first two

¹⁸⁷ At this time, *Rāma* was taught the metaphysical reality of world, over 2-3 weeks in the royal assembly, and established into the ultimate non-dual state by his guru *Vasiṣṭha*, as known to us from *Yoga Vāsiṣṭha*.

¹⁸⁸ *Svayamvara* is an event where the bride and her family select the bridegroom, either directly or upon fulfilment of some conditions.

were the daughters of the king *Janaka* and the other two the daughters of *Kuśadhvaja*, the king of *Sāṅkāśya* and the younger brother of *Janaka*. When king *Daśaratha* was thus present in *Mithilā*, *Yudhājit*, the maternal uncle of prince *Bharata* and the crown-prince of *Kaikeya* kingdom, too reached *Mithilā* on not finding *Daśaratha* in *Ayodhyā*, where he was well received. The king *Janaka* fixed the day of marriage on the 3rd day from that day, in the *Uttarā Phalgunī Nakṣatra*, he told thus to king *Daśaratha*:

मधा हि अद्य महाबाहो तृतीये दिवसे प्रभो ।
फल्गुन्यायां उत्तरे राजन् तस्मिन् वैवाहिकं कुरु ॥ RM 1.71.24

*Maghā Nakṣatra it is today, O Brave one, (but) on the third day, O Lord,
Uttarā Phalgunī it will be, O King, then the marriages will be performed.*

At the completion of marriage ceremony on the day of *Uttarā Phalgunī Nakṣatra*, all started for *Ayodhyā* the next morning, reaching where the remaining ceremonies were completed. *Daśaratha* then told *Bharata* to go and spend some time in the *Kaikeya* kingdom as his maternal uncle was waiting to take him. Now, *Śatrughna* was as much a follower of *Bharata*, as was *Lakṣmaṇa* of *Rāma*. So, both *Bharata* and *Śatrughna* left for *Kaikeya*, along with their new brides. Some time later, king *Daśaratha* decided to anoint *Rāma* as the crown-prince even as *Bharata* and *Śatrughna* were still away in *Kaikeya* kingdom, a decision which resulted in the exile of *Rāma*. Quite obviously, this time wasn't more than a few months from that of the marriage of the four princes. It's known that *Rāma* went with sage *Viśvāmitra* towards the end of his 16th year and that he set out for his exile at the end of his 18th year, about 03 days short of his 18th birthday.

As *Rāma* was in his 16th year or 17th year at the time of his marriage, it must have taken place in one of the years of 1316, 1315 and 1314 BCE. It's known that it took place in *Uttarā Phalgunī Nakṣatra* but the exact *Tithi* is not stated in the *Rāmāyaṇa*. But it's believed that it took place on *Mārgaśīrṣa Śukla Pañcamī* (S05).

No.	Month	Yr. 1316 BCE	Yr. 1315 BCE	Yr. 1314 BCE
1	<i>Māgha</i>	18.01.-1315	07.01.-1314	26.01.-1313
2	<i>Phālguna</i>	16.02.-1315	06.02.-1314	25.02.-1313
3	<i>Caitra</i> **	18.03.-1315	07.03.-1314	26.03.-1313
4	<i>Vaisākha</i>	17.04.-1315	06.04.-1314	25.04.-1313
5	<i>Jyeṣṭha</i>	16.05.-1315	05.05.-1314	24.05.-1313
6a	<i>Āṣāḍha</i> (<i>Ādhika</i>)	-	-	-
6b	<i>Āṣāḍha</i>	15.06.-1315	04.06.-1314	23.06.-1313
7	<i>Śrāvāṇa</i>	14.07.-1315	04.07.-1314	22.07.-1313
8	<i>Bhādrapada</i>	13.08.-1315	02.08.-1314	21.08.-1313
9	<i>Aśvin</i>	11.09.-1315	02.09.-1314	20.09.-1313
10	<i>Kārtika</i>	11.10.-1315	30.09.-1314	19.10.-1313
11	<i>Mārgaśīrṣa</i>	09.11.-1315	30.10.-1314	18.11.-1313
12a	<i>Pauṣa</i>	09.12.-1315	28.11.-1314	17.12.-1313
12b	<i>Pauṣa</i> (<i>Ādhika</i>)	-	28.12.-1314	-

** On *Caitra* S09 of 1316 BCE (Mar 22), *Rāma* had completed 15 years of age.

Table 4.6
Śukla Pañcamī (S05) Dates of Years 1316, 1315 & 1313 BCE

On checking the table above, none of these *Mārgaśīrṣa* *Śukla Pañcamī* (S05) dates look to be in the *Uttarā Phalgunī Nakṣatra* or even in its vicinity. So, it can be concluded well that the marriage didn't take place in *Mārgaśīrṣa* month. Perhaps, it occurred on a *Śukla Pañcamī* (S05) of some other month. On checking all these *Śukla Pañcamī* (S05) dates, the only such date that was in *Uttarā Phalgunī Nakṣatra* is the *Jyeṣṭha Śukla Pañcamī* of year 1314 BCE, the day of May 24, 1314 BCE (24.05.-1313).

Also, it should be noted that the marriage couldn't have happened on *Kṛṣṇa Pañcamī* (K05) day or on any other date of *Kṛṣṇa Pakṣa* (waning phase of moon). This is so because when king Janaka told king *Daśaratha* that it was the *Maghā Nakṣatra* and that the marriage will be performed on the 3rd day in *Uttarā Phalgunī Nakṣatra*, he also requested king *Daśaratha* to perform a *Śrādha*

(ritual offering to the souls of dead ancestors) that day itself for the well-being of marriage of *Rāma*. This type of *Śrādha* is known as *Ābhuyudika Śrādha* or *Nandīmukha Śrādha*, and is performed for the blessings of ancestors before a new marriage. As it can be performed only in the *Śukla Pakṣa* (waxing phase of moon), this *Śrādha*, as well the marriage of *Rāma*, took place only in *Śukla Pakṣa*. **So, if the marriage indeed took place on a *Śukla Pañcamī*, it was on the *Jyeṣṭha Śukla Pañcamī* (S05) day on May 24, 1314 BCE, in Vijaya Muhūrta.**

Now as to *Sītā*'s age at the time of her marriage. It's known from her own testimony to *Hanumān* that she was 12 years old (in 13th year) at the time of her marriage and at the time of *Rāma*'s exile:

स्तुषा दशरथस्याहं शत्रुसैन्यप्रतापिनः ।
दुहिता जनकस्याहं वैदेहस्य महात्मनः ॥ RM 5.33.16
सीता च नाम नामा अहं भार्या रामस्य धीमतः ।
समा द्वादश तत्र अहं राघवस्य निवेशने ॥ RM 5.33.17
भुञ्जाना मानुषान् भोगान् सर्वं काम समृद्धिनी ।
ततः त्रयोदशे वर्षे राज्येन इक्ष्वाकु नन्दनम् ॥ RM 5.33.18
अभिषेचयितुं राजा स उपाध्यायः प्रचक्रमे ।
तस्मिन् सम्भ्रियमाणे तु राघवस्य अभिषेचने ॥ RM 5.33.19

Daughter-in-law of Daśaratha I am, (who is) tormentor of the enemy armies, (And) daughter of Janaka I am, (the king) of Videha kingdom, a great man.

Sītā is my name, I am wife of Rāma, who is greatly wise,

(of) Twelve years was I, when to Rāma I was married off.

(While) Enjoying the luxuries and pleasures, fulfilling all my desires (in Ayodhyā),

Then, in my 13th year itself, for (granting) the kingdom to scion of Ikṣvāku (Rāma),

For his anointment as king, the preceptors started (the procedure).

While that was being arranged, the Rāghava's (Rāma's) anointment...

This was told to *Hanumān* when he finally located *Sītā* in captivity of *Rāvaṇa* in a garden. So, the marriage took place within the 12 months preceding the exile of *Rāma* on *Caitra* S06. *Sītā* told

Hanumān that she lived in her father's house for 12 years before she was married to *Rāma* and in her 13th year itself, when she was in *Ayodhyā*, the king *Daśaratha* decided to anoint *Rāma* when, the two boons given to queen *Kaikeyī* by king *Daśaratha* became the cause of *Rāma*'s exile. This clearly points out to us that *Sītā* had completed 12 years and was running her 13th year when she was married to 17 year old *Rāma*¹⁸⁹. Now, another verse attributed to *Sītā*, from the time of her kidnapping by *Rāvana*, states that she was 18 and *Rāma* was 25 at the time of marriage:

मम भर्ता महाते जा वयसा पञ्च विंशकः ।
अष्टादश हि वर्षाणि मम जन्मानि माप्यते ॥ RM 3.47.10

*My husband, of great splendor, is aged twenty five (years),
(And) eighteen years, since my birth, have passed.*

But this is clearly an interjected verse and unoriginal. First, it is in direct contradiction of what was told by *Sītā* to *Hanumān*. Second, if *Sītā* was 18 years old at the time of her kidnapping in the 14th year of exile, she had to be about 5 years old (18-13) at the time of her marriage and her subsequent exile with *Rāma* which is an impossibility. Girls were usually married at about 12 years, at the beginning of their menses and not at 4-5 years of age. Knowing this, some would argue that it's stated to be so by *Sītā* for the time of start of exile but even then it doesn't hold good because firstly, the verse is not in past tense but present tense, and secondly, *Rāma*'s being 25 years old at the time of exile is in direct contradiction of his mother *Kausalya* telling him of having witnessed his 17 birthdays. So, clearly, this verse is inadmissible.

¹⁸⁹ It was a common Ārya practice to marry off girls about 12-15 years of age. It is said that a father who kept a girl child in his home beyond her 3 menses, partook of some sin. The *Sanātana Dharma* says that the right age to get married is at puberty which is nature's way of communicating, through hormonal change, the readiness of body for mating and reproduction. It's factually known that girls achieve puberty about 12 years and the boys achieve it about 15 years of age.

6. Omens of Daśaratha

On **Mar 15, 1313 BCE**, the day before the exile of *Rāma*, king *Daśaratha* conveyed to his royal assembly that he was very old now, nearing his end time, had enjoyed the kingdom for long and now wished to anoint *Rāma*. As *Rāma* was the eldest prince, was highly regarded by one and all, was now married and was of the right age as well, everyone was happy with this proposal. So, king *Daśaratha* fixed the very next day for the anointment of *Rāma*, retired to his palace and ordered the minister *Sumantra* to show *Rāma* in his presence. Then, *Daśaratha* told *Rāma* that, as per the court astrologers, the planets Sun, Mars and *Rāhu* were aspecting his birth *Nakṣatra* and that he wished to anoint him the crown-prince very next day in *Puṣya Nakṣatra*, before any mishap could occur. *Rāma* was asked to prepare for his anointment by fasting the night as per the prescribed rites.

अवष्टब्धं च मे राम नक्षत्रं दारुणैर्ग्रहैः ।

आवेदयन्ति दैवज्ञाः सूर्याङ्गारकराहुभिः ॥ RM 2.4.18

प्रायेण हि निमित्तानामीदृशानां समुद्भवे ।

राजा हि मृत्युमाप्नोति घोरं वापदमृच्छति ॥ RM 2.4.19

अद्य चन्द्रोभ्युपगतः पुष्यात्पूर्वं पुनर्वसू ।

श्वः पुष्ययोगं नियतं वक्ष्यन्ते दैवचिन्तकाः ॥ RM 2.4.21

*Seized is mine (birth) Nakṣatra, O Rāma, by fearful planets,
Per saying of (court) astrologers, they (the planets) are Sun, Mars and Rāhu.
Usually, by these (ominous) omens, when they such appear,
The king either dies, or (some) grave trouble he faces.
Today, the moon is arrived at the one before Puṣya, the Punarvasu,
Tomorrow, in Puṣya joining (of moon), (your anointment will be carried out),
say the astrologers.*

It can be seen that the following *SBC* chart of **Mar 15, 1313 BCE** confirms not only the statement of *Daśaratha* about Sun (Su), Mars (Ma) and *Rāhu* (Ra) aspecting his *Nakṣatra* but also reveals his birth *Nakṣatra* as the *Rohinī Nakṣatra*. As it was the *Caitra* month,

the king *Daśaratha* too was born in the *Caitra* month, on a day of *Rohinī Naksatra*:

Agni	Prajapati	Soma	Rudra	Aditi	Brihaspati	Sarpa																											
KRIT Ve	ROHI Ma	MRIG	ARDR	PUNA Mo	PUSH	ASHL																											
Vasva	Aja Ektapad	Ahir-Budh	Pushan	Ashvini	Yama																												
DHAN	SHAT	P.BHA	U.BHA	REVA	BHAR																												
Varuna					Me																												
Ke	Ju																																
Dasharatha Omens Mar 15, 1313 BCE 06:24:12 IST Ayodhya, India 82E12, 26N48 (Vedic Ayanamsa)																																	
Date: 15.03.-1312 06:24:12, Ayodhya <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>Su:</td><td>(Ashvini 3)</td><td>03°32'40" Ari</td></tr> <tr><td>Mo:</td><td>(Punarvasu 1)</td><td>17°22'50" Gem</td></tr> <tr><td>Ma:</td><td>(Rohini 1)</td><td>07°25'05" Tau</td></tr> <tr><td>Me:</td><td>(Bharani 2)</td><td>13°28'29" Ari</td></tr> <tr><td>Ve:</td><td>(Krittika 2)</td><td>28°42'42" Ari</td></tr> <tr><td>Ju:</td><td>(Shatabhischa 1)</td><td>06°21'23" Aqu</td></tr> <tr><td>Sa:</td><td>(Jyeshtha 4)</td><td>26°09'07" Sco</td></tr> <tr><td>Ra:</td><td>(Magha 2)</td><td>03°03'03" Leo</td></tr> <tr><td>Ke:</td><td>(Dhanishtha 4)</td><td>03°03'03" Aqu</td></tr> </table>							Su:	(Ashvini 3)	03°32'40" Ari	Mo:	(Punarvasu 1)	17°22'50" Gem	Ma:	(Rohini 1)	07°25'05" Tau	Me:	(Bharani 2)	13°28'29" Ari	Ve:	(Krittika 2)	28°42'42" Ari	Ju:	(Shatabhischa 1)	06°21'23" Aqu	Sa:	(Jyeshtha 4)	26°09'07" Sco	Ra:	(Magha 2)	03°03'03" Leo	Ke:	(Dhanishtha 4)	03°03'03" Aqu
Su:	(Ashvini 3)	03°32'40" Ari																															
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Ma:	(Rohini 1)	07°25'05" Tau																															
Me:	(Bharani 2)	13°28'29" Ari																															
Ve:	(Krittika 2)	28°42'42" Ari																															
Ju:	(Shatabhischa 1)	06°21'23" Aqu																															
Sa:	(Jyeshtha 4)	26°09'07" Sco																															
Ra:	(Magha 2)	03°03'03" Leo																															
Ke:	(Dhanishtha 4)	03°03'03" Aqu																															
SHRA		ABHI	U.ASH	P.ASH	MULA	Sa																											
Vishnu	Brahma	Vishvadev	Apa	Nairitti	Indra	ANUR																											
Vishnu	Brahma	Vishvadev	Apa	Nairitti	Indra	Mitra																											

Figure 4.2
SBC of the Day of *Daśaratha's Omens*

Here, also remember the account from the *Purāṇā* about king *Daśaratha* setting out to fight and subsequently worshipping and propitiating the deity of planet Saturn to spare his kingdom the 12-year famine on its piercing the *Rohiṇī Nakṣatra*, as was divined by his court astrologers. If the *Rohiṇī Nakṣatra* was not the birth Nakṣatra of king *Daśaratha* himself, piercing of which forbade great evil for his kingdom, why would even *Daśaratha* try to propitiate Saturn? The hymn composed for the deity of Saturn, by *Daśaratha*, is commonly available.

Now, when sage *Viśvāmitra* came to take away the 15 year old *Rāma*, king *Daśaratha* stated that he was 70 years old now and had got *Rāma* with much trouble:

षष्ठिः वर्ष सहस्राणि जातस्य मम कौशिक ।
कृच्छ्रेण उत्पादितः च अयं न रामं नेतुं अर्हसि ॥ RM 1.20.10

*Seventy years (60+10)** have passed from my birth, O son of Kauśika!
With many tribulations, is born this Rāma, taking him, is not proper of you.*

** षष्ठिः=60, सहस्राणि=10, षष्ठिः वर्ष सहस्राणि = 60+10=70 years

As *Rāma* had already completed 15 years of age on Mar 22, 1316 BCE at this occasion, king *Daśaratha* was born 70 years before, in 1386 BCE, in its *Caitra* month in *Rohinī Nakṣatra*, a day that comes to Apr 07 (Sunday), a *Sukla Prathamā* (S01) day. As his personal generation time started 29 years later in 1357 BCE, king *Daśaratha* belonged to Gen.98. So, there was a gap of one generation between *Daśaratha* and *Rāma* which is quite obvious as *Daśaratha* is addressed as “the old king” numerously in the *Rāmāyaṇa* text.

7. Kidnapping of *Sītā*

It was 12 months and a few days before the war when *Rāvana* kidnapped *Sītā* because, only few days after abducting *Sītā*, *Rāvaṇa* set for her a time-limit of 12 months to become his queen:

प्रति उवाच ततः सीतां भय संदर्शनं वचः ।
शृणु मैथिलि मद् वाक्यं मासान् द्वादश भामिनि ॥ RM 3.56.24
कालेन अनेन न अभ्येषि यदि मां चारु हासिनि ।
ततः त्वां प्रातः आशा अर्थं सूदाः छेत्स्यन्ति लेशशः॥ RM 3.56.25

(The *Rāvaṇa*) said to *Sītā* then, showing her fear,
Listen O Maithili (lady of Mithilā), to my words, in 12 months, O Woman,
In this time, if you don't come to me, O lady of the best smile,
Then, you, for my breakfast, the cooks will slice to pieces.

This is confirmed by what *Sītā* told *Hanumān*, when he discovered her in the royal garden of *Laṅkā*:

द्वौ मासौ तेन मे कालो जीवित अनुग्रहः कृतः ।
 ऊर्ध्वं द्वाभ्यां तु मासाभ्यां ततः त्यक्ष्यामि जीवितम् ॥ RM 5.33.31
 स वाच्यः सम्त्वरस्व इति यावत् एव न पूर्यते ।
 अयं सम्वत्सरः कालः तावधि हि मम जीवितम् ॥ RM 5.37.7
 वर्तते दशमो मासो द्वौ तु शेषौ प्लवग्मम् ।
 रावणेन नृशंसेन समयो यः कृतो मम ॥ RM 5.37.8

Two months, he has given me, for a period of survival, as (pretending) favor, At the expiry of these 2 months, then I will give up life.
He (Rāma) is to be told to make haste till it (this period of remaining 2 months) is not completed,
Of this present Saṃvatsara, the time duration that remains (to its completion), for this (time) only will I live.
Now is the 10th month (of the time set for me), 2 months are left, O Monkey, Rāvaṇa, the terrible, has set this time limit for me.

Sītā told *Hanumān* that *Rāvaṇa* had set her a time limit of 12 months at the end of which she was to be killed if she didn't consent to become his wife. *Sītā* also said that only 02 months remained to expiry of her time limit as well as to the end of that *Saṃvatsara* (year). Clearly, she meant to say that the remaining two months of her time-limit were also the last two months of the year. As *Rāma*'s exile ended on *Caitra S07* of year 1299 BCE, a little after the war, these last two months of *Sītā*'s time-limit were the last two months of the *Saṃvatsara* (year) before, that of 1300 BCE. As can be seen from the following calendar of 1300 BCE, these two last months were that of *Pauṣa* and *Pauṣa (Ādhika)*. This also implies that *Hanumān* went to *Laṅkā* at the very end of *Mārgaśīrṣa* month. Counting back 12 months from the end of *Pauṣa (Ādhika)* month, we get to the end of first month of *Māgha* of 1300 BCE as the start of *Sītā*'s time limit. So, *Sītā* was kidnapped by *Rāvaṇa* about 7-8 days before the end of *Māgha* month for him to have given her full 12 months time for deliberation, up to the end of that year.

So, the date of *Sītā*'s kidnapping was Feb 08, 1300 BCE (08.02.-1299), the *Māgha* K08 day (8th day of the dark-half of *Māgha* month), 8 days from its end, as also corroborated by the *Padma Purāṇa*¹⁹⁰. With the time of kidnapping of *Sītā* now known, the time of arrival of *Śurpanakhā*, the sister of *Rāvana* who exhorted him to kidnap *Sītā*, can now be located.

Year 1300 BCE			
No.	Month	First Day	Full Moon Day
1	<i>Māgha</i>	17.01.-1299	31.01.-1299
2	<i>Phālguna</i>	16.02.-1299	01.03.-1299
3	<i>Caitra</i>	17.03.-1299	31.03.-1299
4	<i>Vaisākha</i>	16.04.-1299	29.04.-1299
5	<i>Jyeṣṭha</i>	15.05.-1299	28.05.-1299
6	<i>Āṣāḍha</i>	14.06.-1299	27.06.-1299
7	<i>Śrāvana</i>	13.07.-1299	27.07.-1299
8	<i>Bhādrapada</i>	12.08.-1299	25.08.-1299
9	<i>Aśvin</i>	10.09.-1299	24.09.-1299
10	<i>Kārtika</i>	09.10.-1299	24.10.-1299
11	<i>Mārgaśīrṣa</i>	08.11.-1299	23.11.-1299
12	<i>Pauṣa</i>	08.12.-1299	22.12.-1299
13	<i>Pauṣa (Ādhika)</i>	06.01.-1298	21.01.-1298
Year 1299 BCE (End of <i>Rāma</i> 's Exile)			
No.	Month	First Day	Full Moon Day
1	<i>Māgha</i>	05.02.-1298	19.02.-1298
2	<i>Phālguna</i>	07.03.-1298	20.03.-1298
3	<i>Caitra</i>	05.04.-1298	19.04.-1298
4	<i>Vaisākha</i>	05.05.-1298	18.05.-1298

Table 4.7
Vedic Calendars of Year 1300-1299 BCE

¹⁹⁰ आगतो राक्षसस्तां तु हर्तु पाप विपाकतः ।
ततो माघ असिताष्म्यां मुहूर्ते वृन्द संज्ञिते ॥ PP 5.36.23

8. Before the Kidnapping

When his first 10 years of exile were completed at various hermitages, *Rāma* went to meet the highly venerable sage *Agastya* at his hermitage and thereafter, as indicated by sage *Agastya*, set up his hut nearby at *Pañcavaṭī* (About Chakghat, MP: 25°02'34"N, 81°43'16"E). It is stated that *Rāma* stayed at *Pañcavaṭī* comfortably for some time before *Śūrpaṇakhā*, the widowed sister of *Rāvaṇa*, chanced upon him and *Lakṣmaṇa* and became the cause of kidnapping of *Sītā*. As *Sītā*'s kidnapping took place near the start of year 1300 BCE, *Śūrpaṇakhā* arrived on the scene only few months before, in the ending months of the year 1301 BCE. So, *Rāma* had stayed at *Pañcavaṭī* for about 2.5 years before the arrival of *Śūrpaṇakhā*. Of this time, before the arrival of *Śūrpaṇakhā*, it is stated that the *Śarada Rtu* (autumn season) had just about passed and the pleasant *Hemanta Rtu* (pre-winter season) had set in:

वसतः तस्य तु सुखं राघवस्य महात्मनः ।
शरद् व्यपाये हेमंतऋष्टुः इष्टः प्रवर्तते ॥ RM 3.16.1

*Dwelt there, in peace, the Rāghava (*Rāma*), the great man,
The autumn season passing away, the pleasant Pre-Winter season set in.*

Year 1301 BCE			
No.	Month	First Day	Full Moon Day
9	<i>Aśvin</i>	20.09.-1300	05.10.-1300 (AE: 04.10.-1300 15:25)
10	<i>Kārtika</i>	20.10.-1300	04.11.-1300 (2 nd day of <i>Hemanta Rtu</i>)
11	<i>Mārgaśīrṣa</i>	19.11.-1300	03.12.-1300
12	<i>Pauṣa</i>	18.12.-1300	02.01.-1299

Seasons (Rtu) are tied only to actual equinoxes and solstices:
WS: 01.01.-1300 18:51, VE: 01.04.-1300 23:25
SS: 05.07.-1300 06:24, AE: 04.10.-1300 15:25 (Oct 04, 1301 BCE)

Table 4.8
Vedic Calendar of Year 1301 BCE

Now, the starting point of *Hemanta Rtu* (pre-winter season) of this year lay on Nov 03, 1301 BCE (04:03:38 IST). As this timepoint lay before the local midday (11:51:55) at *Pañcavaṭī*, Nov 03, 1301 BCE itself was the first day of *Hemanta Rtu*, coming just a day before the *Kārtika* Full Moon Day of Nov 04, 1301 BCE (04.11.-1300 01:54 IST), as can be seen from the calendar given above. **Thus, the *Nava Āgrayaṇa* (the first 9 days of *Hemanta Rtu* reserved for fire worship of ancestors; also mentioned in *Yajurveda* to be linked with *Hemanta Rtu*) was due to be over on Nov 11, 1301 BCE.**

One day after the *Kārtika* Full Moon Day when the *Hemanta Rtu* had set in, *Rāma*, *Lakṣmaṇa* and *Sītā* were going for their morning bath to the riverside. Here, *Lakṣmaṇa* noted to *Rāma* the change of seasons in great detail. He said that the river water now felt cold to even the animals who hesitated in touching it, that the skin now felt dry, that the westerly winds blew with double the force, that the fields were now lush with wheat and oat crops, that even the full moon appeared dull due to mist in this season and **that the *Nava Āgrayaṇa* was also just over¹⁹¹**. Then, after they returned, it is stated that when *Rāma* sat narrating some stories to *Sītā* and *Lakṣmaṇa*, he looked like the Moon in *Citrā Nakṣatra*.

उवास सुखितः तत्र पूज्यमानो महर्षभः ।
स रामः पर्णशालायां आसीनः सह सीतया ॥ RM 3.17.3
विरराज महाबाहुः चित्रया चन्द्रमा इव ।
लक्ष्मणेन सह भ्रात्रा चकार विविधाः कथाः॥ RM 3.17.4

*Sat comfortably there, respected by the sages,
That Rāma, in a hut, dwelling along with Sītā.
Appeared the long-armed one (Rāma), like the Moon in Citrā Nakṣatra,
With Lakṣmaṇa, his brother, (he) told various stories.*

It can be checked that, on **Nov 12, 1301 BCE** (*Kārtika* K08), the next day of *Nava Āgrayaṇa*, it was the *Citrā Nakṣatra*. So, it's the next day of the finish of 9 days of *Nava Āgrayaṇa* that is recounted here.

¹⁹¹ नव आग्रयण पूजाभिः अभ्यर्च्य पितृ देवताः ।
कृत आग्रयणकाः काले सन्तो विगत कल्मषाः ॥ RM 3.16.6

8.1 Arrival of Śūrpaṇakhā

Few days after Nov 12, 1301 BCE (*Kārtika K08*), when *Rāma* was again sitting and narrating some stories to *Lakṣmaṇa* and *Sītā* in the morning, Śūrpaṇakhā appeared on the scene:

तदा आसीनस्य रामस्य कथा संसक्त चेतसः ।
 तं देशं राक्षसी काचिद् आजगाम यदुच्छहया ॥ RM 3.17.5
 सा तु शूर्पणखा नाम दशग्रीवस्य राक्षसः ।
 भर्गिनी रामं आसाद्य ददर्श त्रिदश उपमम् ॥ RM 3.17.6

Then, (when) sitting there, Rāma was engrossed in telling tales, To that region, a Rākṣasī arrived, as willed by fate. Her name was Śūrpaṇakhā; of Daśagrīva Rākṣasa (Rāvana), She was the sister; reaching Rāma, she saw him look equal to heavenly gods.

Śūrpaṇakhā went mad with lust on seeing the most handsome *Rāma* in the middle of forest and prepositioned him. *Rāma*, amused at this, joked back to her that as he was already married, she should take recourse to the handsome *Lakṣmaṇa* who may perhaps like to take a forest wife as well. When she requested *Lakṣmaṇa* to be her paramour, he laughed saying that he was just a humble servant of *Rāma* and that she should think of marrying only the master. Thus mocked, Śūrpaṇakhā, taking *Sītā* to be the cause of her rejection by the princes, ran towards her to harm her. At this, *Rāma* asked *Lakṣmaṇa* to quickly get hold of Śūrpaṇakhā and punish her. *Lakṣmaṇa* cut the nose and ears of Śūrpaṇakhā for this offence as women were usually not killed. The crying Śūrpaṇakhā dashed off to her half-brother *Khara* who was stationed in the nearby location of *Janasthāna* (Likely, Janeh in Madhya Pradesh: 25°04'48"N, 81°36'27"E). *Khara* immediately dispatched 14 *Rākṣasā* to kill *Rāma* but they all were slain by *Rāma*.

8.2 Arrival of *Khara-Dūṣaṇa* & Solar Eclipse

Then, *Khara*, taking along his brother *Dūṣaṇa* and 24 (14+10) other *Rākṣasā*, set out to kill *Rāma*. Just as *Khara* started out on his chariot

towards Rāma's place, a solar eclipse took place which is described in great detail. It's stated that even though it was not the sunset time yet, the day went dark and the stars could be seen. It's also stated that the army of *Khara-Dūṣāṇa*, arrived near the two princes, looked like the string of planets formed next to Moon and Sun.

बभूव तिमिरं घोरमुद्रतं रोमहर्षणम् ।
दिशो वा विदिशो वापि न च व्यक्तं चकाशिरे ॥ RM 3.23.8
क्षतजार्द्रसवर्णाभा सन्ध्याकालं विना बभौ ।
खरस्याभिमुखा नेदुस्तदा घोरमृगाः खगाः ॥ RM 3.23.9
कड़कगोमायुगृध्राश्च चुकुशुर्भयशंसिनः ।
नित्याशुभकरा युद्धे शिवा घोरनिर्दर्शनाः ॥ RM 3.23.10
नेदुबलस्याभिमुखं ज्वालोद्वारिभिराननैः ।
कवन्धः परिधाभासो दृश्यते भास्करान्तिके ॥ RM 3.23.11
जग्राह सूर्यं स्वर्भानुरपर्वणि महाग्रहः ।
प्रवाति मारुतः शीत्रं निष्प्रभोऽभृदिवाकरः ॥ RM 3.23.12
उत्पेतुश्च विना रात्रिं ताराः खद्योतसप्रभाः ।
संलीनमीनविहगा नलिन्यः शुष्कपङ्कजाः ॥ RM 3.23.13

(Then) Arose a darkness, a great one, a hair-raising one,
All directions and quarters were not visible and didn't shine,
Of the color of wet puss, without the time of sunset, appeared (the sky),
Facing Khara, started howling then, the dreadful animals and birds,
Kanka birds, Jackals and vultures emitted cries, feeling fearful,
Always foreboding ills, at the time of war, the jackals, terrible looking,
Howled, facing the army, as if emitting fire (of death) from their mouths,
The obstructing clouds (at sunset), it looked like, (went) near the Sun.
Caught hold of the Sun, Svarbhānu (Rāhu), at wrong time, the great planet,
Blew the wind swiftly, without its (usual) luster, became the Sun,
Arose, without the night, the stars, glittering like fireflies,
Disappeared the fishes & birds, (without them) ponds looked like dry-lotuses.

सा भीमवेगा समर अभिकांक्षिणी सुदारुणा राक्षसवीर सेना ।
तौ राजपुत्रौ सहसा अभ्युपेता मालाग्रहाणां इव चन्द्रसूर्यौ ॥ RM 3.23.34

*That greatly speeding, war desirous, terrible, brave Rākṣasā' army,
To those two princes, it rashly arrived, like the string of planets,
(formed) next to the duo of Moon and Sun.*

Clearly, this is the solar eclipse of **Nov 17, 1301 BCE** (Max @ 14:32 IST) that occurred on *Kārtika* K13, the 6th day from the last day of the *Nava Āgrayaṇa* on Nov 11, 1301 BCE. As this Solar Eclipse occurred in the *Mūla Nakṣatra*, a *Nakṣatra* assigned to the *Rākṣasa* race, it indicated their impending destruction. It can also be verified that, at this time of Solar eclipse, four planets (Me, Ve, Ma and Ju) formed a string next to the duo of Moon and Sun:

Solar Eclipse on the Day of <i>Rāma's</i> Battle with <i>Khara-Dūṣaṇa</i>	
Solar Eclipse	Planetary String next to Moon & Sun
Nov 17, 1301 BCE - 12:48 IST (Start) - 14:32 IST (Max) - 16:00 IST (End)	Mo: 05Sg38 Mula, Q3 -Moon Su: 05Sg18 Mula, Q3 -Sun Me: 10Sg14 Pash, Q1 -Mercury Ve: 21Sg47 Pash, Q4 -Venus Ma: 19Cp48 Shra, Q4 -Mars Ju: 12Aq47 Shat, Q3 -Jupiter
<i>Pañcavati</i> (Chakghat, Madhya Pradesh) [25°02'34"N, 81°43'16"E]	

Table 4.9
Solar Eclipse and *Rāma's* Battle with *Khara* and *Dūṣaṇa*

Subsequently, *Khara* and *Dūṣaṇa* were also slain by *Rāma*, along with their army. The arrival of *Śūrpanakhā* at *Pañcavati* and the subsequent killing of *Khara* and *Dūṣaṇa* by *Rāma* took place on the same day. Noticing the slaying of her two half-brothers and their army by *Rāma*, *Śūrpanakhā* then dashed off to *Rāvaṇa* in a little afar *Lankā*¹⁹² to break him the news:

रक्षसां भीम वीर्यणां सहस्राणि चतुर्दश ॥ RM 3.34.9

निहतानि शरैः तीक्ष्णैः तेन एकेन पदातिना ।

अर्धाधिक मुहूर्ते खरः च सह दूषणः ॥ RM 3.34.10

¹⁹² The *Lankā* of *Rāvaṇa* was not in the country Sri Lanka, not anywhere even near but it was at the southern border of *Āryāvarta / Bhāratavarṣa*, across the *Vindhyaśala* mountain range, somewhere about the south bank of present-day *Bāṇasāgara* Lake in Madhya Pradesh.

Rākṣasā, huge and brave, 24 (14+10; traditionally, 14,000) in number, he killed by sharp arrows, while all alone and on foot (without chariot), in 1.5 Muhūrtā (72 minutes), including Khara (who was) with Dūṣāṇa.

She planted the seeds of lust in *Rāvaṇa*'s heart for *Sītā* by describing her great beauty and by exhorting *Rāvaṇa* to make her his queen. *Rāvaṇa*, aggrieved at the death of his half-brothers, counseled with his ministers and at last he decided that *Sītā* should be kidnapped at which the estranged *Rāma* would die by himself. *Rāvaṇa* hatched a plan and went to the *Rākṣasa Mārīca* who had taken to austerities in isolation. *Mārīca* initially rejected the demand of *Rāvaṇa* but when he was threatened with death on his non-cooperation, *Mārīca* thought it better to die at the hands of *Rāma*. About 3 months later, *Mārīca* took the form of a golden deer and grazed in front of *Sītā* who requested *Rāma* to fetch the golden deer or its beautiful hide. *Rāma*, knowing that there were no golden deer and that it was perhaps some trickery of *Rākṣasā*, nonetheless went to hunt it while appointing *Lakṣmaṇa* to guard *Sītā*. *Mārīca*, in the form of deer, took *Rāma* afar and when *Rāma*'s arrow finally pierced him, he cried aloud "O *Lakṣmaṇa!* O *Sītā!*" a few times, in the voice of *Rāma*, and fell down dead. Both *Lakṣmaṇa* and *Sītā* heard these cries calling for help. *Sītā*, greatly agitated at this, asked *Lakṣmaṇa* to rush for help but *Lakṣmaṇa*, knowing full well that nothing could happen to *Rāma*, stayed put on his guard as assigned by *Rāma*. At this *Sītā* grew very angry and shouted at *Lakṣmaṇa* that perhaps he desired to have her for himself that's why he wasn't going to his brother's help. At last, *Lakṣmaṇa* couldn't listen to these sharp barbs anymore and reluctantly left to where the cries came from. *Rāvaṇa*, who was hiding in the bushes nearby in the garb of a sage, then appeared and carried out the kidnapping of *Sītā* in his aircraft *Puspaka*. As the kidnapping of *Sītā* happened on Feb 08, 1300 BCE, it took place nearly 03 months after the slaying of *Khara* and *Dūṣāṇa* by *Rāma* on Nov 17, 1301 BCE.

9. Alliance with Sugrīva & March to Laṅkā

After the kidnapping of *Sītā*, *Rāma* and *Lakṣmaṇa* engaged in her search and soon discovered the great eagle *Jatāyu* lying on the ground and bleeding profusely, his wings severed by *Rāvaṇa*. On enquiry, *Jatāyu* told *Rāma* that he was a friend of *Rāma*'s father *Daśaratha* and that his wings got severed in his trying to stop *Sītā*'s kidnapping. He said that a *Rākṣasa* by the name of *Rāvaṇa* had kidnapped *Sītā*, taking her to south direction in an aircraft, and then he died. *Rāma* ritually cremated him like a father figure and offered the prescribed oblations for the welfare of his soul. Then the brothers kept looking for *Sītā* in nearby mountain caves. Soon, they noticed another *Rākṣasī* by name of *Ayonikā*, who jumped on *Lakṣmaṇa* pleading love. Angry at this, *Lakṣmaṇa* cut off her nose, ears and one breast.

Walking ahead, they soon found themselves caught in the long arms of a headless, legless demonic creature named *Kabandha*. It's said he had his mouth in his stomach itself with which he tried to devour the duo. *Rāma* and *Lakṣmaṇa* cut off his arms at his shoulders when he took them near his mouth. *Kabandha* was originally a cursed *Gandharva* by the name of *Vishvavasu*. As was the curse set upon him by *Indra*, the chief of gods, he was to be liberated only when *Rāma* would cremate his demonic body. This he told *Rāma* upon being asked the identity of *Rāvaṇa*. When *Rāma* cremated his body as per the *Rākṣasa* rites, the cursed *Gandharva* regained his original divine form and told *Rāma* to seek the friendship of the monkey king *Sugrīva* who was exiled by his elder brother *Vāli* and who lived on a nearby mountain *Rṣayamūka* with his 4 ministers. He said that if *Rāma* could help *Sugrīva* regain his kingdom, he would help back with the search of *Sītā*.

Thus being directed by *Kabandha* to *Sugrīva*, *Rāma* and *Lakṣmaṇa* headed for *Pampā* Lake (Likely, Baraha Kalan, Madhya Pradesh: 24°52'12"N, 81° 09'47"E), reaching where *Rāma* was mesmerized by the beauty of *Pampā* Lake and its adjoining areas:

वसन्तो यदि तत्र अपि यत्र मे वसति प्रिया ।
नूनं परवशा सीता सा अपि शोच्यति अहं यथा ॥ RM 4.1.47

*Should this spring season be there too, where my dear wife is living,
Definitely that kidnapped Sītā will be grievous just the same as I am now.*

It was now the advancing spring season, probably the month of *Caitra*. *Sugrīva*, sitting atop the *Rṣayamūka* Mountain next to the *Pampā* Lake, noticed the two bow-wielding princes coming his way and felt threatened. He dispatched *Hanumān*, his most clever and erudite minister, to discover the intentions of the duo. On knowing of their friendly intentions, *Hanumān* took them to *Sugrīva* where *Rāma* told *Sugrīva* that he could kill *Vāli* and reinstall him to monkey kingdom but he had to help his cause as well. Then, *Rāma* and *Sugrīva* pledged friendship in front of fire. After some time had gone by, *Rāma* asked *Sugrīva* to challenge and draw out *Vāli* for a fight, where he shot *Vāli* with a sharp arrow to his heart and subsequently asked *Lakṣmaṇa* to install *Sugrīva* as the king:

इन्द्रध्वज इवोद्धृतः (A1) पौर्णमास्यां महीतले (B1) ।
आश्वयुक्समये मासि (A2) गतश्रीको विचेतनः (B2) ॥ RM 4.16.37

*Like the Indra's Flag, uprooted (A1); on Full Moon Day, on the ground, (B1)
At the time of (start of) Aśvin month (A2); went dead the blessed one. (B2)*

Meaning:

*Like the Indra's Flag, uprooted, at the time of (start of) Aśvin month;
On Full Moon Day, on the ground, went dead the blessed one (*Vāli*).*

Note: This is a unique composition style of the great sage *Vālmīki*, also employed in some other verses of *Rāmāyaṇa*. Here, the first half of the first line (A1) is completed by the first half of second line (A2) whereas the second half of first line (B1) is completed by the second half of second line (B2).

The *Indra's Flag* was hoisted by people for the 02 months of rainy season (usually the two months of *Śrāvana* and *Bhādrapada*)

indicating their prayers to *Indra* for good rains and it was taken down when these 02 months were considered over at the start of *Aśvin* month. This verse is wrongly taken to mean that *Vāli* was killed on the Full Moon Day of *Aśvin* month. As will be seen ahead, *Rāma* explicitly stated this month to be that of *Śrāvāna* which comes 02 months before the *Aśvin* month. Looking at the calendar of the year 1300 BCE, it becomes known that *Vāli* was killed on **July 27, 1300 BCE** (27.07.-1299), the Full Moon Day of the *Śrāvāna* month of this year.

The dying *Vāli* protested to *Rāma* that he was unrighteously shot at by the ‘righteous’ *Rāma* while he was unaware of his presence. To this, *Rāma* replied that he was merely doing his duty as an establisher of the Vedic *Dharma* under the command of king *Bharata*, *Bharata* being the sovereign of all Earth (*Āryāvarta*). *Rāma* told *Vāli* that he was awarded the death penalty because he had forcefully taken the wife of his younger brother as his own wife. As per the Vedic code, the wife of younger brother is considered equal to a daughter, punishment for whose violation is death. *Rāma* also told *Vāli* that he was of the monkey tribe and when the kings or princes hunt game in the forests, they don’t care if the animals are unaware of their presence. *Vāli*, fully satisfied with *Rāma*’s answer, prayed to *Rāma* that his son *Aṅgada* must be taken care of by him as he feared his mistreatment by *Sugrīva* and died peacefully. Then, at the instruction of *Rāma*, *Aṅgada* was anointed the crown-prince of *Kiṣkindhā* by *Sugrīva*. Both, the highly intelligent *Tārā*, the now widowed wife of *Vāli*, and *Rumā*, the original wife of *Sugrīva*, became the two queens of *Sugrīva*.

9.1 Four Months of Wait

When *Sugrīva* was installed as the king of *Kiṣkindhā* town on *Śrāvāna* Full Moon Day, it was already the rainy season. So, *Rāma* asked *Sugrīva* to enjoy his regained kingdom while they waited for the following 04 months of rains and mud to be over before setting out for the location of *Rāvāna*.

पूर्वो अयं वार्षिको मासः श्रावणः सलिल आगमः ।

प्रवृत्ताः सौम्य चत्वारो मासा वार्षिक संज्ञितः ॥ RM 4.26.14

न अयं उद्योग समयः प्रविश त्वं पुरीं शुभाम् ।

अस्मिन् वत्स्यामि अहं सौम्य पर्वते सह लक्ष्मणः ॥ RM 4.26.15

कार्तिके समनुप्रासे त्वं रावण वधे यत ।

एष नः समयः सौम्य प्रविश त्वं स्वं आलयम् ॥ RM 4.26.17

First is this month of the rainy ones, the Śrāvana, when water pours down, Already commenced is, O Gentle One, the (period of) four months known as that of rains (and mud).

This is not the time for any effort, enter (now) your city, that is auspicious, (Meanwhile) Here, I will dwell, O Gentle One, on this mountain, along with Lakṣmaṇa.

When the Kārtika (month) starts, then you will (help) in (the ultimate purpose of) killing Rāvaṇa, because,

This is not the (right) time, O Gentle One, enter your own residence (for now).

The intent of *Rāma* in simultaneously mentioning the 04 months of rain and mud as well as the month of *Kārtika* (the 4th month from *Śrāvana*) was for *Sugrīva* to organize the search parties from the start of *Kārtika* month itself, when the rains are largely over with only some mud remaining, so that they can set out to kill *Rāvaṇa* by the end of month of *Kārtika*, when the search parties have returned and when the mud caused by the rains been all dried up.

But *Sugrīva*, forgetful of time and his duty due to passionate indulgence in his wives, allowed even the first fortnight of *Kārtika* to pass without making any efforts towards organizing the search parties. *Hanumān*, his wise minister, noted this and reminded him of the importance and urgency of *Rāma*'s pending task. This must have been the day next to the *Kārtika Pūrṇimā*. Upon this, *Sugrīva* immediately ordered for all monkey chiefs to assemble there with their troops within 15 days and lustfully reentered his harem without further ordering any intimation to *Rāma* and *Lakṣmaṇa* who were living in a cave on a nearby hilltop.

त्रिपञ्च रात्राद् ऊर्ध्वं यः प्राप्नुयाद् इह वानरः ।
तस्य प्राणान्तिको दण्डो न अत्र कार्या विचारणा ॥ RM 4.29.32

*In excess of 15 nights, which monkey comes here,
To him, death is the punishment, no other consideration (for him).*

At the expiry of the said month of *Kārtika*, a still waiting *Rāma*, who meanwhile received no communication from *Sugrīva* in regards to the search mission for *Sītā*, while it should have been undertaken a month before, sent *Lakṣmaṇa* to go and chastise *Sugrīva* verbally and to remind him of his duty to the waiting friend. This day looks to be the very first day of *Mārgaśīrṣa* month.

चत्वारो वार्षिका मासा गता वर्ष शत उपमा: ।
मम शोक अभितपस्य तथा सीतां अपश्यतः ॥ RM 4.30.64
वर्षा समय कालं तु प्रतिज्ञाय हरीश्वरः ।
व्यतीतान् चतुरो मासान् विहरन् न अवबृद्धये ॥ RM 4.30.78
स मासान् चतुर कृत्वा प्रमाणं प्लवगेश्वरः ।
व्यतीतान् तान् मद उदग्रो विहरन् न अवबृद्धये ॥ RM 4.33.45

*Four rainy months have passed, feeling like 100 years (to me),
I am, with grief, burning on not seeing Sītā.
The rainy season's time, per the promise of monkey king (to comply),
is spent, the 4 months thereof, wallowing in pleasure, (he) doesn't heed it.
He, set a 4 months criterion, that monkey king,
Which are now spent, wallowing in sexual pleasure, (he) doesn't heed it.*

9.2 Start of Search for *Sītā*

On the very first day of *Mārgaśīrṣa* month, an angry *Lakṣmaṇa* went to the nearby *Kiṣkindhā* to chastise *Sugrīva* as per the instructions of *Rāma*. This arrival was reported by messengers to *Sugrīva* who became fearful. So, the wise *Tārā*, the widowed wife of *Vāli* and now the wife of *Sugrīva*, approached *Lakṣmaṇa* and calmed him down by telling him that *Sugrīva* has already ordered an assembly which was due that very day:

कृता सुसंस्था सौमित्रे सुग्रीवेण यथा पुरा ।
अद्य तैः वानरैः सर्वैः आगंतव्यं महाबलैः ॥ RM 4.35.21

*Complete is the organization, O Son of Sumitrā, by Sugrīva already,
Today itself, monkeys, all of them, are to come, who are of great strength.*

Lakṣmaṇa cast aside his anger and requested *Sugrīva*, who also asked for forgiveness, to accompany him back to *Rāma* to apprise him of all the arrangements. Then *Lakṣmaṇa* and *Sugrīva*, along with all the monkey chiefs who had gathered there, went and visited *Rāma* atop the *Rṣayamūka* Mountain. There, for the search of *Sītā*, *Sugrīva* organized four search parties for the four directions under various monkey chiefs and gave them one month's time, that of month of *Mārgaśīrṣa* itself, to return from their mission and announced that those who didn't get back in one month were to be put to death.

अभिगम्य तु वैदेहीं निलयं रावणस्य च ।
मासे पूर्णे निर्वर्तध्वं उदयं प्राप्य पर्वतम् ॥ RM 4.40.69
ऊर्ध्वं मासात् न वस्तव्यं वसन् वध्यो भवेन् मम ।
सिद्धं अर्थाः संनिर्वर्तध्वं अधिगम्य च मैथिलीम् ॥ RM 4.40.70

*On approaching the residence of Vaidehi (Sītā) and of Rāvana,
By the end of full month, you come back, before sun gets to mountain (rises).
In excess of this month, don't stay out, if stayed, (he) will be killed by me,
Becoming successful, (you) shall return, on visiting the Maithili (Sītā).*

Subsequently, except the south search party that was organized under the crown-prince *Aṅgada*, along with the minister *Hanumān*, all others returned within the assigned duration of one month but fruitlessly. The monkeys of south search party, looking for *Sītā* everywhere in the *Vindhya*calā mountain range, couldn't locate her and then, towards the southern side of *Vindhya*calā, they entered a huge cave full of fruits and fresh water and, spending some days there, forgot all about their time limit. This cave was being taken care of by a female ascetic by the name of *Svayamprabhā* and she welcomed the monkeys. All this is described in great detail in

chapters 3.48-3.53 of *Rāmāyaṇa*. When the monkeys finally remembered the time, they sought help from *Svayamprabhā* who took them to an exit that was on the south side of *Vindhyaśala* mountain range and from where the north bank of the sea of *Laṅkā* could be seen. *Svayamprabhā* pointed out to the monkeys the *Vindhya* Mountain and the *Sāgara* (the ‘sea’ of *Laṅkā*) after which they sat under the trees at the base of *Vindhya* mountain:

एष विन्ध्यो गिरिः श्रीमान् नानाद्रुमलता आयुतः ।
एष प्रसवणः शैलः सागरो अयं महोदधिः ॥ RM 4.53.12

*This is Vindhya Mountain, magnificent, by diverse trees & vines, it's covered,
This is Prasavāṇa Hill, (and this is) the Sāgara (sea), the vast water-body.*

विन्ध्यस्य तु गिरेः पादे संप्रपुष्पित पादपे ।
उपविश्य महात्मानः चिन्तामापेदिरे तदा ॥ RM 4.53.16

*At Vindhya Mountain's (south) base, (under) the well-blossomed trees,
Sat down (the) distinguished (monkeys), now worried.*

Note: The only big ancient water-body that is at the south base of *Vindhyaśala* is the present-day *Bāṇa Sāgara* reservoir in the state of Madhya Pradesh and this seems to be the ‘Sāgara’ (sea) of *Laṅkā* which is described to be just at the south border of *Āryāvarta* / *Bhāratavarṣa*. *Laṅkā* is said to be in the middle of *Sāgara*. All the *Purāṇa* and Vedic texts clearly state the *Vindhyaśala* mountain range as the south border of ancient *Āryāvarta* / *Bhāratavarṣa*. Needless to say, the *Laṅkā* of *Rāvaṇa* being in the country Sri Lanka, the *Pañcavaṭī* being in present-day Nasik in the state of Maharashtra, the *Kiṣkindhā* being in the present-day Humpi in the state of Karnataka, are only popular misconceptions formed from the wrong interpretations of distance units of Vedic *Śaṃskṛt* wherein one *Yojana* (योजन) that originally means only 108 ft. is taken to be between 5-9 miles. The country of Ceylon even changed its name to Sri Lanka only in 1972, owing to these popular misconceptions. As also discussed separately, all the areas south of *Vindhya* were collectively known as the *Pātāla*, the nether worlds.

So, when the monkeys were now out on the north bank of (*Bāṇa*) *Sāgara*, they became dejected on observing the near-end of their time limit of one month as getting back to *Kiṣkindhā* in the remaining time was impossible and, on top of that, they were also unsuccessful. So, the crown-prince *Aṅgada* and other monkeys decided to give up life by starvation as they thought it better to die of hunger than being killed by their king *Sugrīva* on reaching *Kiṣkindhā* late. The wise *Hanumān* tried to stop them but failed.

Note: Here, there is an interjected verse attributed to *Aṅgada* that puts the expiry of one-month's time limit at the end of *Aśvin* month, implying that the monkeys set out on their search mission at the start of *Aśvin* month:

वयं आश्रयुजे मामि कात्र संख्या व्यवस्थितः ।
प्रस्थिताः सो अमि च अतीतः किं अतः कार्यं उत्तरम् ॥ RM 4.53.9

*We, for the month of Aśvin, were given the time limit,
Starting, just like that, it's now past, what is to be done next (let's discuss)?*

This verse isn't original because, as *Aśvin* is only the 3rd month from *Śrāvāna*, it is in direct contradiction with other verses that clearly state *Rāma* recounting the time of *Sugrīva*'s crowning as the *Śrāvāna* month as also his anger on *Sugrīva* due to passing of the full 04 months, as counted from the *Śrāvāna* month. Thus, it was only at the start of *Mārgaśīrṣa* month, when 04 full months from *Śrāvāna* had expired, that the monkeys set out on their one-month search mission. When we deliberate on the purpose of this forged verse, it seems that its aim was to prove the linkage of *Divālī* festival with *Rāma*'s return to *Ayodhyā*. *Divālī* is celebrated on the new moon day of *Kārtika* month and, quite commonly but wrongly, taken to be the day of *Rāma*'s return to *Ayodhyā*. Only by proving that search parties returned by the end of *Aśvin* month, it could be made believable that *Rāma* reached *Laṅkā*, killed *Rāvaṇa* and got back to *Ayodhyā* by the end of the subsequent month of *Kārtika*.

So, *Angada* and other monkeys didn't listen to *Hanumān* and they started discussing the story of *Rāma* amongst themselves as they resolved to lie down on straw-mats for their hunger-strike unto death. *Sampāti*, the brother of *Jatāyu* and a huge old eagle, who lived in a nearby cave, was listening to them and as the mention of his brother *Jatāyu* came up, he enquired of the monkeys the entire story of *Rāma* and the purpose of their visit. Subsequently, *Sampāti* told them that he had seen the *Rāksasa* king *Rāvaṇa* carry a lamenting woman to *Laṅkā* in his aircraft and, as the woman was crying "O *Rāma*! O *Lakṣmaṇa*!" she must have been *Sītā*. He finally revealed to monkeys that the *Laṅkā* city lay atop a mountain top near the south bank of the *Sāgara*. The monkeys were happy to finally know of the location of *Laṅkā* and *Rāvaṇa* but it still remained to collect news of *Sītā* for which crossing the *Sāgara* and visiting *Laṅkā* was necessary. The monkeys, after discussing amongst themselves, finally decided that only the extremely wise and strong *Hanumān* was capable of crossing the 100 *Yojana* (~3.29 Km.) wide *Sāgara* and accomplishing the task of getting the news of *Sītā*. Thus, *Hanumān*, reminded of his strength, took upon himself the duty of completing this task.

9.3 *Hanumān's Visit to Laṅkā*

Hanumān crossed the *Sāgara*, waited until sunset to enter *Laṅkā* and subsequently saw the entire *Laṅkā* atop the *Trikūṭa* Mountain, the aircraft *Puspaka* and the palaces of *Rāvaṇa*, as well as the sleeping *Rāvaṇa* and his queens. *Hanumān* was stunned at the material opulence of *Laṅkā*. Not finding any lady that could possibly be *Sītā* in the harem of *Rāvaṇa*, he looked for her elsewhere and finally found a woman sitting in *Aśoka Vāṇikā*, the royal garden of *Rāvaṇa*, guarded by many women soldiers. *Hanumān* identified her as *Sītā* by her sorrowful condition and by analyzing her ornaments that were described to him by *Rāma*. *Hanumān* kept himself well-hidden on a tree while analyzing *Sītā*, the night was still not over. Here it is stated of *Sītā* that she looked as delicate as the Moon at the start of month:

उपवासकृशां दीनां निःश्वसन्ति पुनः पुनः ।
ददर्श शुक्लपक्षादौ चन्द्ररेखां इव अमलाम् ॥ RM 5.15.19

*Weakened by fasting, pitiful, heaving again and again,
(She) looked like crescent Moon at the start of Bright-Half, of white color.*

As now it's known that the monkeys were already near the expiry of their one-month time limit of *Mārgaśīrṣa* month, it wouldn't be wrong to conclude that here *Vālmīki* is stating a fact in form of a simile and that this time was indeed just about the beginning of *Śukla Pakṣa* of *Pauṣa* month that was set to begin with the sunrise. *Vālmīki* also states here that *Sītā* looked to *Hanumān* as tormented as was the *Rohiṇī Nakṣatra* by (the aspect of) Mars:

पीडितां दुःखसंतसां परिम्लानां तपस्विनीम् ।
ग्रहेण अङ्गारकेण एव पीडितां इव रोहिणीम् ॥ RM 5.15.22

*Bashful, tormented by sorrow, emaciated, like a lady sage (is she),
Like, by the planet Mars, is (now) tortured, the Rohiṇī Nakṣatra.*

The planet Mars was aspecting the *Rohiṇī Nakṣatra* diagonally from its position in *Svāti*, as can be seen from the SBC chart of the morning of **Dec 08, 1300 BCE** (08.12.-1299), the first day of *Pauṣa* month, drawn for the location of *Laṅkā* (24°08'49"N, 81°09'08"E).

So, it seems, *Hanumān* arrived in *Laṅkā* on the day before, that of **Dec 07, 1300 BCE**, the last day of *Mārgaśīrṣa* month (*Mārgaśīrṣa Amāvasyā*), a new moon day, looked for *Sītā* during that night before finding her sitting in *Aśoka Vāṭikā*, the royal garden. He spoke with her on **Dec 08, 1300 BCE**, in early morning, a little before the sunrise, in about the last hour of *Mārgaśīrṣa* month.

This is also confirmed by *Sītā*, kidnapped towards the end of first month of *Māgha*, when she noted to *Hanumān*, that the running month (of *Mārgaśīrṣa*) was the 10th month of her time-limit set by *Rāvaṇa* and that only 02 more months of her time-limit, as well as that of the current *Samvatsara* (year), remained for *Rāvaṇa* to kill her if she didn't consent to become his wife:

स वाच्यः सम्वरस्व इति यावद् एव न पूर्यते ।
 अयं सम्वत्सरः कालः तावधि हि मम जीवितम् ॥ RM 5.37.7
 वर्तते दशमो मासो द्वौ तु शेषौ प्लवग्माम ।
 रावणेन नृशंसेन समयो यः कृतो मम ॥ RM 5.37.8

*He (Rāma) is to be told to make haste till it (this period of remaining 2 months) is not completed,
 Of this present Saṃvatsara, the time duration that remains (to its completion), for this (time) only will I live.
 Now is the 10th month (of my time-limit), 2 months are left, O Monkey, Rāvaṇa, the terrible, has set this time limit for me.*

It can be seen from the calendar below that the 02 months *Sītā* was talking about, as those remaining of the year and her time-limit, are those of *Pauṣa* and *Pauṣa* (*Ādhika*). This observation well-validates the Vedic Calendar rules as well because, as expected, this year had the intercalary month of *Pauṣa* (*Ādhika*).

Year 1300 BCE				
No.	Month	First Day	F.M. Day	Event
1	<i>Māgha</i>	17.01.-1299	31.01.-1299	<i>Sītā</i> 's Kidnapping
2	<i>Phālguna</i>	16.02.-1299	01.03.-1299	
3	<i>Caitra</i>	17.03.-1299	31.03.-1299	
4	<i>Vaisākha</i>	16.04.-1299	29.04.-1299	
5	<i>Jyestha</i>	15.05.-1299	28.05.-1299	
6	<i>Āṣāḍha</i>	14.06.-1299	27.06.-1299	
7	<i>Śrāvaṇa</i>	13.07.-1299	27.07.-1299	Killing of <i>Vāli</i>
8	<i>Bhādrapada</i>	12.08.-1299	25.08.-1299	
9	<i>Aśvin</i>	10.09.-1299	24.09.-1299	
10	<i>Kārtika</i>	09.10.-1299	24.10.-1299	
11	<i>Mārgaśīrṣa</i>	08.11.-1299	23.11.-1299	Search Mission
12a	<i>Pauṣa</i>	08.12.-1299	22.12.-1299	<i>Sītā</i> found
12b	<i>Pauṣa</i> (<i>Ādhika</i>)	06.01.-1298	21.01.-1298	

Table 4.10
 Vedic Calendar of Year 1300 BCE

Then, *Hanumān* noticed *Rāvaṇa* arrived there to speak to *Sītā* directly on his waking up. Here, sage *Vālmīki* has recorded a *Dhūmaketu* (comet/asteroid) passing through the *Rohiṇī Nakṣatra*:

चेष्टमानां तथाविष्टां पन्नगेन्द्रवधूमिव ।
धूप्यमानां ग्रहेणेव रोहिणीं धूमकेतुना ॥ RM 5.19.1

*Writhing, and possessed, like the bride of serpent-king,
By the smoke, that Rohiṇī (is enchanted), (by the smoke) of the Comet.*

Note: On Dec 8, 1300 BCE (06:36:38 IST), the asteroid **77 Frigga** was in *Rohiṇī Nakṣatra* Q2 (12Ta15, Lat: 2.68°).

77 Frigga (Magnitude: **3.84**, Swiss Ephemeris Planet No. 10077)

Next, *Hanumān* noticed *Rāvaṇa* first indulge in sweet talk with *Sītā* and, when that didn't work, saw him tell *Sītā* angrily that now only 02 months remained of her time-limit of 12 months:

द्वौ मासौ रक्षितव्यौ मे योऽवधिस्ते मया कृतः ।
ततः शयनमारोह मम त्वं वरवर्णिनि ॥ RM 5.22.8
द्वाभ्यामूर्ध्वं तु मासाभ्यां भर्तारं मामनिच्छतीम् ।
मम त्वां प्रातराशार्थं आलभन्ते महानसे ॥ RM 5.22.9

*02 months remain, of the time-limit for you, that I have fixed,
Thereafter, ascend my bed, O you, lady of the best complexion!
At expiry of (these) 02 months, (if you) I as (your) husband, do not desire.
I (will), (have) you, for my breakfast, killed, in my kitchen.*

After *Rāvaṇa* left, *Hanumān* noticed that there was still some time left for the night to be over and that *Sītā*, looking shaken and suicidal by *Rāvaṇa*'s early morning visit, needed to be assured:

अनेन रात्रि शेषेण यदि न आश्वास्यते मया ।
सर्वथा न अस्ति संदेहः परित्यक्ष्यति जीवितम् ॥ RM 5.30.12
*By this time, (when only a little) night was left; (thought Hanumān) if not reassured by me,
There is no doubt, (that Sītā) will cease to live.*

This is when *Hanumān* decided to speak to *Sītā*. But *Hanumān* felt afraid that, on noticing him hidden in the tree, *Sītā* may take him to be a *Rākṣasa* and cry aloud with fear which was sure to attract the attention of guards and to jeopardize his mission. Thinking of a suitable way of initiating a dialogue with her, the wise *Hanumān* finally decided to slowly sing the story of *Rāma*, in common language, such that it was audible only to *Sītā*. This had the desired effect on *Sītā* who felt comforted by listening to the story of her husband and got talking to *Hanumān*. *Hanumān*, still hidden from the view of everyone but *Sītā*, was able to convey all to *Sītā* and assured her that *Rāma*, along with the army, would be in *Laṅkā* very soon and that she should be patient. Then *Hanumān* gave her the ring of *Rāma* as a mark of his identification. In return, *Sītā* told *Hanumān* two incidents known only to her and *Rāma* and also gave him her hair ornament to be given to *Rāma*. As also stated earlier, *Sītā* then told *Hanumān* that only 02 months of her time-limit, as well as that of the current *Samvatsara* (year), remained before she was to be killed by *Rāvaṇa*.

Having accomplished his main task, the greatly-wise *Hanumān* now thought to demoralize the *Rākṣasā* as a pre-war strategy. He reasoned that some destruction and killing of a few *Rākṣasā* on his part would be a novel way to meet *Rāvaṇa* when he could deliver him the message. So, *Hanumān* got down from the tree, saluted *Sītā* and took on a bigger and terrible form. Sparing only the big tree under which *Sītā* used to sit, *Hanumān* completely destroyed the royal garden (*Aśoka Vāṭikā*) where *Sītā* was held in captivity. This was immediately reported by the female guards to *Rāvaṇa* who then dispatched many *Rākṣasa* generals one by one to capture the big monkey. *Hanumān* killed all these generals including *Akṣaya*, a young but brave son of *Rāvaṇa*. Subsequently, *Hanumān* was captured and bound by *Meghanāda*, another son of *Rāvaṇa* who had defeated *Indra*, by the divine weapon of *Brahmā*. As other *Rākṣasā* then secured *Hanumān* also with normal ropes, he was automatically freed of the bounds of the divine weapon. But *Hanumān*, wanting to meet *Rāvaṇa*, acted as if he was still bound.

On being brought before *Rāvaṇa* in his court for questioning, *Hanumān* told him that he was a messenger of *Rāma* and asked *Rāvaṇa* to honorably restore *Sītā* back to *Rāma*. An angry *Rāvaṇa* ordered for *Hanumān* to be killed. But *Vibhiṣaṇa*, the righteous younger brother of *Rāvaṇa*, told him that a messenger couldn't be killed under any circumstances but some other prescribed punishment could be given. So, *Rāvaṇa*, saying that the monkeys love their tail the most, ordered for *Hanumān*'s tail to be set on fire and for *Hanumān* to be thus paraded around *Lankā*. This was a blessing in disguise for *Hanumān* for now he came to know all the lanes and bylanes of *Lankā* that he couldn't observe during the previous night. *Hanumān* wondered as to why the fire didn't burn his tail and took it to be a blessing. Subsequently, *Hanumān* freed himself and, with the fire set ablaze on his tail, burned down the houses of all ministers of *Rāvaṇa* except that of *Vibhiṣaṇa*. Then he destroyed the palace of *Rāvaṇa* himself and set it on fire as well. The fire raged on and engulfed almost the entire city of *Lankā*. Then, *Hanumān*, fearing for the safety of *Sītā*, visited her once more to ensure that she was safe from the fire. After that, he spent the night in the forest outside the *Lankā* city and set out to return the next morning, on **Dec 09, 1300 BCE**. Here, when *Hanumān* was returning to the north bank of the *Sāgara*, the sage *Vālmīki* has given a vivid description of the morning sky, full of similes:

सचन्द्रं कुमुदं रम्यं सार्कं कारण्डवं शुभम् ।
 तिष्यं श्रवणं कदम्बं अभ्यं शैवलं शाद्वलम् ॥ RM 5.57.1
 पुनर्वसुं महामीनं लोहिताङ्गं महाग्रहम् ।
 ऐरावतं महाद्वीपं स्वातीं हंसं विलोडितम् ॥ RM 5.57.2

(In that pleasant and auspicious sky-like sea)

Moon like a water lily, looked pleasant, together with the Sun looking like a water-fowl, the auspicious one,
Puṣya and *Śrāvaṇa* Nakṣatrā were like Swans, the clouds like duck weeds,
Punarvasu Nakṣatra like great fish, Mars like a great crocodile,
Airāvata, like a large island, with *Svāti* Nakṣatra, like a Swan, was graced.

It can be noticed from the above 2 verses that both the Moon and Sun are stated to be visible that day, where Moon is stated to be together with the Sun. The Moon can be together with the Sun only near the new moon.

After the return of *Hanumān* to the north bank of *Sāgara*, the monkeys of south search party returned to *Kiṣkindhā* by about the middle of *Pausa* month. Since they had returned in considerable excess of their one-month time limit, they didn't want to face *Sugrīva* directly, fearing death. But as they were successful in their search mission, they instead deposited themselves into *Madhuvana*, the royal fruit and honey garden of *Sugrīva*, under encouragement from *Hanumān* and the crown-prince *Aṅgada*. There they claimed their self-declared reward, thus also indirectly communicating their success to their king *Sugrīva*. The next morning, the monkeys were shown in the presence of *Rāma* where *Hanumān* narrated all the events in detail. *Rāma*, extremely happy to note the great intelligence and valor of *Hanumān*, offered *Hanumān* a good hug, as, in *Rāma*'s own words, he had no material thing to offer him at that time.

9.4 *Rāma's March to Laṅkā*

On that very day, after midday, when the monkeys of south search party were shown in *Rāma*'s presence, *Rāma* mentioned the *Nakṣatra* to be *Uttarā Phalgunī* and told *Sugrīva* to proceed with the army that very moment:

अस्मिन् मुहूर्ते सुग्रीव प्रयाणं अभिरोचये ।
युत्तो मुहूर्तो विजयः प्रासो मध्यं दिवाकरः ॥ RM 6.4.3
उत्तरा फल्गुनी हि अद्य श्वस्तु हस्तेन योक्ष्यते ।
अभिप्रयाम सुग्रीव सर्व अनीक समावृताः ॥ RM 6.4.5

*This very Muhūrta, O Sugrīva, I feel inclined for departure,
Conjoined with the Muhūrta named Vijaya, Sun has attained the midday.
Uttarā Phalgunī Nakṣatra it is today, tomorrow will be the Hasta Nakṣatra,
Let us depart, O Sugrīva, with all troops surrounding us.*

Year 1300 BCE				
No.	Month	First Day	F.M. Day	Event
11	<i>Mārgaśīrṣa</i>	08.11.-1299	23.11.-1299	Search Mission
12a	<i>Pauṣa</i>	08.12.-1299	22.12.-1299	<i>Sītā</i> found
12b	<i>Pauṣa (Ādhika)</i>	06.01.-1298	21.01.-1298	

Table 4.11
Vedic Calendar of Year 1300 BCE

Looking, in the above calendar, for the day of *Uttarā Phalgunī Nakṣatra* in the *Pauṣa* month, we find it to be **Dec 25, 1300 BCE**, a *Kṛṣṇa Caturthī* (K04) day. On this day, in the *Vijaya Muhūrta*, *Rāma* and his army marched towards *Laṅkā* in the southern direction:

ततो वानर राजेन लक्ष्मणेन च पूजितः ।
जगाम रामो धर्मात्मा ससैन्यो दक्षिणां दिशम् ॥ RM 6.4.23

*Then, by the monkey king and by Lakṣmaṇa, having been worshipped,
Went forward the Rāma who is virtuous, with army, in the south direction.*

When they just started out on the march, *Lakṣmaṇa* told *Rāma* that the planet Venus, named after the son *Śukra* of sage *Bhṛgu*, is hanging behind *Rāma*, promising victory as a good omen:

प्रसन्नाः च दिशः सर्वा विमलः च दिवाकरः ।
उशना च प्रसन्नार्चिः अनु त्वां भाग्वो गतः ॥ RM 6.4.48

*Bright are all directions, clear is the Sun,
Venus, of bright light, is behind you, who is born of the sage Bhṛgu.*

Since they started proceeding to *Laṅkā* in the south direction, *Lakṣmaṇa*, who must have noticed the position of Venus before Sunrise, noted to *Rāma* that Venus was hanging behind *Rāma* after midday. It can be verified that Venus indeed rose heliacally (with the sunrise) on Dec 25, 1300 BCE and that it was in the midheavens (10th house) by midday, moving along with the Sun. *Lakṣmaṇa* also stated that he noticed a comet near the *Mūla Nakṣatra*, a *Nakṣatra* assigned to the *Rākṣasa* race, which was an

indication of the impending destruction of the *Rākṣasā* and was thus, an indication of their own victory:

नैऋतं नैऋतानां च नक्षत्रं अभिपीड्यते ।
 मूलं मूलवता स्पर्शतः धूप्यते धूमकेतुना ॥ RM 6.4.52
 सर्वं च एतद् विनाशाय राक्षसानां उपस्थितम् ।
 काले काल गृहीतानां नक्षत्रं ग्रह पीडितम् ॥ RM 6.4.53

*The Mūla Nakṣatra, of the Rākṣasā, is tormented,
 The Mūla Nakṣatra, is touched perpendicularly, and tormented, by a comet.
 All this, for the destruction of the Rākṣasā, is now happening,
 Towards their end, seized by time of death, (their) Nakṣatra is tormented by
 the comet.*

On checking the *Mūla Nakṣatra* for any asteroids on the morning of Dec 25, 1300 BCE, we find that there were about 5 of them: "23 Thalia", "27 Euterpe", "78 Diana", "80 Sappho" and "34 Circe". It was perhaps "27 Euterpe", one of the brightest ones, that was observed by *Lakṣmaṇa*:

23 Thalia	(10023, Mag: 2.06)	:: Mula,Q4 (09Sg31, Lat: 4.52°)
27 Euterpe	(10027, Mag: 2.26)	:: Mula,Q1 (29Sc35, Lat: 0.97°)
34 Circe	(10034, Mag: 3.82)	:: Mula,Q2 (03Sg05, Lat: 0.92°)
78 Diana	(10078, Mag: 3.26)	:: Mula,Q3 (04Sg40, Lat: -5.00°)
80 Sappho	(10080, Mag: 3.77)	:: Mula,Q3 (05Sg45, Lat: -0.55°)

Table 4.12
 Comets in *Mūla Nakṣatra*, as observed by *Lakṣmaṇa*

10. Exact Dates of *Rāmāyaṇa* War

From the midday of Dec 09, 1300 BCE, when *Hanumān* returned to the north bank of *Sāgara*, and where after the south search party returned to *Kiṣkindhā*, **to the midday of Dec 24, 1300 BCE**, when the monkeys of south search party deposited themselves in the garden of *Sugrīva*, **15 days can be counted to have elapsed**. This

tells us that the way, now already well known, from the north bank of the *Sāgara* to the *Kiṣkindhā* city, took 15 days to travel on foot through the mountainous terrain. **About the same 15 days can now be taken as those required for Rāma to reach *Laṅkā* along with his army.** Counting 15 days from Dec 25, 1300 BCE, the day of Rāma's departure towards *Laṅkā*, we get the day of Rāma's arrival at the north bank of *Sāgara* as **Jan 09, 1299 BCE**, a day of *Pauṣa* (*Ādhika*) *Śukla Caturthī* (S04).

On the next morning of **Jan 10, 1299 BCE** [*Pauṣa* (*Ādhika*) *Śukla Pañcamī* (S05)], Rāma undertook a three-day fast for *Varuṇa*, the Vedic deity of *Sāgara* and the water god, praying him to appear and help his army cross the *Sāgara*. This day is also corroborated by *Padma Purāṇa*¹⁹³, that mentions it to be a *Pauṣa* S05 day. As *Varuṇa* didn't appear for 03 days despite Rāma carrying out his fast in the prescribed Vedic manner, an angry Rāma invoked the divine weapon of *Brahmā* on the 4th day of **Jan 13, 1299 BCE** [*Pauṣa* (*Ādhika*) *Śukla Aṣṭamī* (S08)] to dry up the *Sāgara*. *Varuṇa*, frightened by the divine arrow, immediately appeared and advised Rāma to construct a bridge, starting from a nearby suitable place, and blessed the army with safety from all creatures of the *Sāgara*.

The construction of bridge looks to have started on S10 date (**Jan 15, 1299 BCE**) for it must have taken them a day and a half to reach the indicated spot and formulate a plan. Hereafter, it took Rāma's army 05 days to construct the bridge and 01 day to pack-up and cross-over to the other side of *Sāgara* where Rāma is said to have stationed the army atop the *Suvela* peak right next to the fort of *Laṅkā*. So, this was the night of 6th day from the start of construction of bridge and it comes to **Jan 20, 1299 BCE** [*Pauṣa* (*Ādhika*) *Śukla Pañcadaśī* (S15)]. Here, it's stated that the night of stationing the army atop the *Suvela* hill was a full moon night:

¹⁹³ समुद्र तरणार्थ्यं पञ्चम्यां मन्त्र उद्यतः ।
प्रायोपवेशनं चक्रे रामो दिन चतुष्यम् ॥ PP 5.36.36

ततो अस्तं अगमत्सूर्यः संध्यया प्रतिरन्जितः ।
पूर्णचन्द्रं प्रदीपा च क्षपा समभिवर्तते ॥ RM 6.38.18

*Then, towards sunset, approached the sun, reddened by light of dusk,
Illumined by the full moon, the night arrived.*

As a full moon night always occurs on the preceding night of a full moon day, the still next day of **Jan 21, 1299 BCE** was the Full Moon day (*Pūrnimā*) as can be verified from the calendar. So, this bright fortnight was a long one, that of 16 days (Jan 6 - Jan 21).

No.	Month	First Day	F.M. Day
Year 1300 BCE			
11	<i>Mārgaśīrṣa</i>	08.11.-1299	23.11.-1299
12a	<i>Pauṣa</i>	08.12.-1299	22.12.-1299
12b	<i>Pauṣa (Ādhika)</i>	06.01.-1298	21.01.-1298
Year 1299 BCE			
1	<i>Māgha</i>	05.02.-1298	19.02.-1298
2	<i>Phālguna</i>	07.03.-1298 (NMP: 05.03.-1298 12:42 IST)	20.03.-1298
3	<i>Caitra</i>	05.04.-1298	19.04.-1298

Table 4.13
Vedic Calendar of Years 1300 BCE & 1299 BCE

After this date, the *Rāmāyaṇa* neither provides a day-to-day account of the war as present in the text of *Mahābhārata*, nor states a count of the days of war. So, we can make a reasonable guess that, from this time of stationing the army atop an adjacent hill to *Laṅkā* fort, providing ample rest to the army, the provisioning of water, food and weapons must have taken up to one month. A great warrior like *Rāma*, well-versed in all sciences would first look to replenish the strength of his army lost in building the bridge for 05 days before setting the army to fight with the *Rākṣasā*. Also, the other events of *Rāma*'s inspection of *Laṅkā* fort on the next day, *Sugrīva*'s wrestling with *Rāvaṇa* on noticing him

standing atop an approachable fort gate, *Āngada*'s visiting *Rāvāna* as a messenger etc. need to be allotted some time.

Now, fortunately for us, the *Tithi* of the previous day of the day of death of *Rāvāna* is provided. It is stated that on the 14th day of dark fortnight (K14) of a subsequent month, the minister *Supārśva* advised *Rāvāna*, who was incensed at the death of his son *Indrajit* at the hands of *Lakṣmaṇa*, to undertake the fight with *Rāma* only on the next day (K15) which was to be a new moon day (*Amāvasyā*), a day when the *Rākṣasā* are said to turn very powerful:

अभ्युत्थानं त्वं अद्यैव कृष्णपक्ष चतुर्दशीम् ।
कृत्वानिर्यात्प्र अमावास्यां विजयाय बलैवृतः ॥ RM 12.6.66

*Readyng yourself today, on dark fortnight's 14th day,
Proceed (to fight) on new moon day (tomorrow), for victory, surrounded by
the army.*

For all the aforesaid reasons, it's highly unlikely that this new moon day was the new moon day of *Pauṣa* (*Ādhika*) (**Feb 04, 1299 BCE**). It's just too close to the day of army's crossing over (**Jan 20, 1299 BCE**) to be practical. It appears, it was the new moon day of the following month of *Māgha* (**Mar 06, 1299 BCE**) which was the day of death of *Rāvāna*. This is confirmed by verifying the stated planetary positions for this day which state that Mercury stood aspecting the *Rohiṇī Nakṣatra* and Mars the *Viśākhā Nakṣatra*. They only match for **Mar 06, 1299 BCE** (*Māgha Amāvasyā*, K15):

प्राजापत्यन् च नक्षत्रं रोहिणीं शशिनः प्रियाम् ।
समाक्रम्य बुधस्तस्थौ प्रजानामशुभावहः ॥ RM 6.102.33
कोसलानान् च नक्षत्रं व्यक्तमिन्द्राग्निदैवतम् ।
आक्रम्याङ्गारकस्तस्थौ विशाखामपि चाम्बरे ॥ RM 6.102.36

*Prajāpati's Nakṣatra, the Rohiṇī, Moon's favorite one,
Aspecting it, the Mercury stood, (which) to all people forebode evil.
Kosala country's Nakṣatra (Viśākhā), the one lorded by god Indrāgni,
Aspecting it, the Mars stood in the sky, that Viśākhā Nakṣatra.*

Figure 4.3
SBC of the Day of Death of *Rāvana*

So, quite clearly, *Rāvaṇa* was killed by *Rāma* on **Mar 06, 1299 BCE** (*Māgha Amāvasyā*, a New Moon Day), a day that was also the last day of war, sometime post noon. The SBC Chart of Mar 06, 1299 BCE highlighting these planetary aspects is given above.

Vibhīṣaṇa, already appointed the king of *Lankā* by *Rāma*, gifted the *Puṣpaka* aircraft of *Kubera*, confiscated earlier by *Rāvaṇa*, to *Rāma*. As the date of return of *Rāma*'s reentry in *Ayodhyā* is already known to be **Apr 11, 1299 BCE** (11.04.-1299), *Rāma* reentered *Ayodhyā* on the 37th day from this last day of war. While returning, *Rāma* used the *Puspaka* aircraft but, as some time was still left for

his 14-year exile to be completely over, he returned while visiting all the hermitages that they had lived in, meeting the sages and halting with them for few days and also showing all those places to *Sītā* that she hadn't seen earlier. At the coronation ceremony of *Rāma*, *Vibhīṣaṇa* and *Sugrīva* were present along with their armies.

11. Timeline of *Rāmāyaṇa*

All the major events of the *Rāmāyaṇa* timeline can now be captured in a single table as provided below:

No.	<i>Rāmāyaṇa</i> Event	Date
1	<i>Rāma's Birth</i> [Last Year of 24 th <i>Tretā-Yuga</i>]	Apr 07, 1331 BCE <i>Caitra Śukla Navamī</i> (S09) <i>P.Phalgunī Nakṣatra</i>
2	<i>Rāma's Marriage with Sītā</i>	May 24, 1314 BCE <i>Jyeṣṭha Śukla Pañcamī</i> (S05) <i>U.Phalgunī Nakṣatra</i>
3	<i>Rāma's Exile</i>	Mar 16, 1313 BCE <i>Caitra Śukla Śaṣṭhī</i> (S06) <i>Puṣya Nakṣatra</i>
4	<i>Śūrpaṇakhā's Arrival at Pañcavati</i> , <i>Rāma's Battle with Khara-Dūṣaṇa</i> (Solar Eclipse, Planetary String)	Nov 17, 1301 BCE (K13) <i>Kārtika Kṛṣṇa Trayodaśī</i> <i>Mūla Nakṣatra</i>
5	<i>Sītā's Kidnapping by Rāvaṇa</i>	Feb 08, 1300 BCE <i>Māgha Kṛṣṇa Aṣṭamī</i> (K08)
6	<i>Rāma's killing of Vāli</i> , the elder brother of <i>Sugrīva</i>	Jul 27, 1300 BCE <i>Śrāvāṇa Pūrṇimā</i> Day (S15)
7	Start of One-Month Search Mission for <i>Sītā</i>	Nov 08, 1300 BCE (S01) <i>Mārgaśīrṣa Śukla Prathama</i>
8	<i>Hanumān</i> returns to north bank of <i>Sāgara</i> from <i>Laṅkā</i>	Dec 09, 1300 BCE <i>Pauṣa Śukla Dvitiyā</i> (S02)
9	South Search Party returns to <i>Kiṣkindhā</i>	Dec 24, 1300 BCE <i>Pauṣa Kṛṣṇa Dvitiyā</i> (K02)

No.	Rāmāyaṇa Event	Date
10	Rāma's March to Laṅkā	Dec 25, 1300 BCE Pauṣa Krṣṇa Trtīyā (K03) U.Phalgunī Nakṣatra
11	Rāma, with the army, arrives at the north bank of Sāgara in 15 days	Jan 09, 1299 BCE (S04) Pauṣa (Ādhika) Śukla Caturthī
12	Rāma undertakes a 3-day fast praying to Varuṇa	Jan 10, 1299 BCE (S05) Pauṣa (Ādhika) Śukla Pañcamī
13	Army starts constructing the Bridge (5 Days + 1 Day of Crossover)	Jan 15, 1299 BCE (S10) Pauṣa (Ādhika) Śukla Daśamī
14	Army crosses over and is stationed atop the Suvela hill adjacent to Laṅkā fort	Jan 20, 1299 BCE (S15) Pauṣa (Ādhika) Pañcadaśī Full Moon Night
15	Death of Rāvaṇa, Last day of war	Mar 06, 1299 BCE Māgha Amāvasyā Day (K15)
16	Return of Rāma to sage Bharadvāja's hermitage at Prayāga	Apr 09, 1299 BCE Caitra Śukla Pañcamī (S05)
17	Rāma meets Bharata in Nandigrāma, on the way to Ayodhyā	Apr 10, 1299 BCE Caitra Śukla Şaṣṭhi (S06) Puṣya Nakṣatra
18	Rāma reenters Ayodhyā and is crowned the King at noon	Apr 11, 1299 BCE Caitra Śukla Saptamī (S07)

Table 4.14
All Major Events of Rāmāyaṇa

The festival of *Divālī*, celebrated on the *Amāvasyā* (New Moon Day) of *Kārtika* month, about November, is quite commonly but wrongly thought to be celebrated for Rāma's return to Ayodhyā. As Rāma's exile started and completed in the *Caitra* month (about Mar-Apr), there is no factual association of the festival of *Divālī* with Rāmāyaṇa. As already known by now, Rāma started his march to Laṅkā only after the middle of *Pauṣa* month, a month and a half from the end of *Kārtika* month. Even Rāvaṇa was killed on the last day (a new moon day) of *Māgha* month. The festival of *Divālī* (*Kārtika/Kaumudī Amāvasyā*) is primarily celebrated as a day of worship of the Goddess, as originally performed by the *Pāṇḍavā*,

along with *Kṛṣṇa*, and the *Kauravā*, in the battlefield of *Kurukṣetra* on Nov 28, 827 BCE, a few days before the start of *Mahābhārata* war (Dec 10). As noted by Al-Biruni, it's also this one day allowed to king *Bali* to visit Earth (Indian Earth, *Āryāvarta*, *Bhāratavarṣa*) from *Pātāla* where he was ordered to stay by *Viṣṇu*. The *Nirvāṇa* of *Mahāvīra* (527 BCE) is also said to have taken place on this day of *Kārtika Amāvasyā*, or probably on the day before.

So, the dates of *Rāmāyaṇa* festivals need to be rectified as it would be quite foolish to continue celebrating them on the dates of their non-occurrence [See Appendix C: Pg. 466]:

1. *Dusshera*, celebrated for the killing of *Rāvaṇa*, should be celebrated on *Māgha Amāvasyā* instead of on *Vijaya Daśamī*.
2. *Ayodhyā Saptamī*, day of final coronation of *Rāma* at *Ayodhyā*, wrongly celebrated on the *Divālī* Day (*Kārtika Amāvasyā*), should be celebrated on the *Caitra Śukla Saptamī* (*Caitra S07*).

12. Events after *Rāma's* Coronation

Few months after the coronation of *Rāma*, it came to *Rāma's* knowledge that some citizens of *Ayodhyā* disapproved his acceptance of *Sītā*, a woman who had lived in the house of a *Rākṣasā* (*Rāvaṇa*) for one year. *Rāma*, deciding on the king's duty to avoid disrepute, ordered *Lakṣmaṇa* to drop a pregnant *Sītā* at the hermitage of sage *Vālmīki* near *Ayodhyā* where she lived until the twins, *Kuśa* and *Lava*, born to her attained of age. *Rāma* never married another woman and remained a celibate the rest of his life. For religious *Yajñā*, he had made a golden statue of *Sītā*, as the presence of queen, in person or in proxy, was necessary at some of these *Yajñā*. The sage *Vālmīki* composed the *Rāmāyaṇa* at the request of *Brahmā* himself who blessed him saying that all the events that had taken place would become known to him through the Yogic insight. *Vālmīki* then taught the *Rāmāyaṇa* to *Kuśa* and *Lava* who used to sing it aloud.

Rāma conducted a total of ten *Aśvamedha Yajña* (Horse-sacrifice ritual) and ruled *Bhāratavarṣa* from *Ayodhyā*, as a *Cakravartī*, for 31 years up to start of 1268 BCE. One of his *Aśvamedha Yajña* was obstructed by *Kuśa* and *Lava* who captured the sacrificial horse and defeated the entire army of *Rāma* that included their uncles, as well as *Sugrīva* and *Hanumān*. They captured *Hanumān*, bound him and took him to their hermitage for displaying the big ‘monkey’ to their mother *Sītā* who recognized *Hanumān* instantly and ordered them to set him free. By this time, *Rāma* himself had come to fight but now, as the identity of *Kuśa* and *Lava* was revealed to him, they were accepted by *Rāma*.

A little later, he appointed *Kuśa* to rule at *Kuśāvatī* (somewhere south of *Vindhya*cala) and *Lava* to rule at *Śrāvastī*. *Lakṣmaṇa* never left the side of *Rāma*. His two sons, *Āṅgada* and *Candraketu*, were installed at *Kārupatha* and *Malladeśa*, regions about Bihar and the Himalayan foothills of Nepal. At the request of *Yudhājīt*, the maternal uncle of *Bharata*, *Rāma* sent *Bharata* to rule *Gandhāra* (modern-day Afghanistan, its original name was *Āraṭṭa*¹⁹⁴) who established his two sons, *Puṣkala* and *Takṣa*, at *Puṣkalāvatī* and *Takṣaśilā* respectively before coming back to stay with *Rāma*. *Śatruघna*, who went and killed *Lavaṇa*, a son of *Madhu* of Lunar line, at *Madhuvana* (Mathura) appointed his two sons, *Subāhu* and *Bahuśruta*, to rule from *Madhuvana* and *Vidiśā* respectively and came back to stay with *Rāma*. When *Rāma* and his brothers were 63 years old, *Rāma* had to remove *Lakṣmaṇa* from his company by a twist of fate. *Lakṣmaṇa*, unable to bear separation from *Rāma*, left his body through *Yoga*. With *Lakṣmaṇa* gone, *Rāma* too decided to

¹⁹⁴ छ्यायते यस्य नामा स गन्धार विषयो महान् ।

आरट्ट देशजाः तस्य तुरगा वाजिनां वराः ॥ MP 26.7

Āraṭṭa / *Gandhāra* was famous for good horses and Lapis Lazuli, a semi-precious blue stone, and is mentioned numerously in the Sumerian literature. The Sumerian ‘goddess’ Inanna was a resident of *Āraṭṭa*. Enmerkar (Gen.65, 2318 BCE), Lugalbanda (Gen.65), his son Gilgamesh (Gen.66, 2289 BCE), all from Uruk/Unug, and Shulgi (Gen.67, 2260 BCE) of Ur, they all have mentioned *Āraṭṭa*.

end his life by discarding his body in the waters of *Sarayū*. As the news of this decision spread through *Ayodhyā*, everyone at *Ayodhyā* wanted to follow *Rāma*. *Sugrīva*, *Vibhīṣaṇa* and *Hanumān* were also present at this time. While *Vibhīṣaṇa* and *Hanumān* were blessed by *Rāma* to continue living as long as they wished, *Sugrīva* gave up the body along with *Rāma* who, first having worshipped the gods, entered the waters of *Sarayū* River. It's said that the sky was full of gods at this time who were there to witness this final event and to welcome the souls of citizens of *Ayodhyā*. The sage *Vasiṣṭha* then told all the citizens present there that all those who wished to shed their bodies and wanted to go to heavens could do so by simply entering the waters of *Sarayū*. As the most citizens jumped into the *Sarayū*, their souls left their bodies effortlessly. With the most citizens of *Ayodhyā* attained to heavens, *Ayodhyā* became totally desolate. Then, sometime later, it's said that the goddess of *Ayodhyā* appeared to *Kuśa* in a dream, asking him to come and repopulate *Ayodhyā*, the city of his ancestors. *Kuśa* and all his citizens left *Kuśāvatī* and resettled at *Ayodhyā*.

13. Geography of *Rāmāyaṇa*

The most geography associated with *Rāmāyaṇa* needs to be corrected. The present-day places of Sri Lanka, Chitrakoot, Panchavati and Kishkindha, that are commonly but wrongly identified with the places of same names mentioned in the *Rāmāyaṇa*, have factually nothing to do with *Rāma* or *Rāmāyaṇa*.

Sāgara, the 'sea' of *Laṅkā*, commonly but wrongly thought to be the South Indian Ocean, looks to be the Bansagar (*Bāṇa Sāgara*, 24°09' N, 81°09' E), the huge reservoir in Madhya Pradesh. Although this dam project on Sone River started in 1978 and was named after the famous scholar *Bāṇa Bhaṭṭa*, there must have existed an original natural water reservoir here that was utilized towards the construction of this dam. Now, there are many facts that make it abundantly clear that Sri Lanka cannot be the *Laṅkā* of *Rāvana*:

1. Sri Lanka was known as *Ceylon* during the British era and, before that, its name was *Simhala Island*, as known from the Indian literature. It was only as recent as 1972 when it changed its name to Sri Lanka, due to the popular misconception of its being the *Lankā* of *Rāvana*.
2. Sri Lanka is clearly on the eastern side of the ocean, from the site of Rameshwaram at Adam's Bridge (*Rāmasetu*), while the *Lankā* was on the south-side of the *Sāgara*.

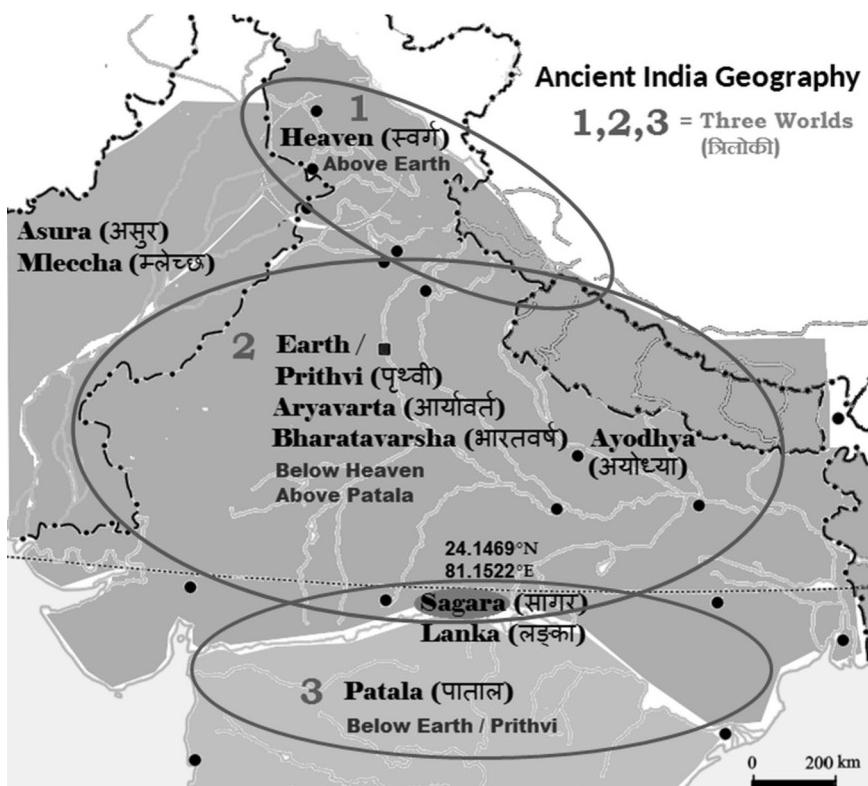


Figure 4.4
Geography of Ancient India, and the Location of *Lankā*

3. While it's stated that the water body of *Sāgara* was to the immediate south of the mount *Mahendra Parvata* in the *Vindhyaśala* mountain range, there are no mountains nearby Rameshwaram for many miles altogether.
4. While it is stated clearly that there was a lush green forest full of many kinds of fruits tree on the north bank of water body of *Sāgara*, there is nothing except barren beaches about Rameshwaram.
5. In all Vedic texts, the *Laṅkā* is stated to be at the southern border of *Bhāratavarṣa* which is clearly stated to be defined by the *Vindhyaśala* mountain range that runs through the middle of present day India. The only great water body that may be called a *Sāgara* (sea, ocean) and that is just south of the *Vindhyaśala* looks to be the present-day water reservoir of Bansagar in Madhya Pradesh.
6. The current area of India that is south of *Vindhyaśala*, was earlier known as the *Pātāla*, the nether worlds. As population increased through the centuries, people kept on shifting down south, and kept on naming the unnamed rivers and areas of *Pātāla* (south India) after those mentioned in the *Rāmāyaṇa*.
7. If *Laṅkā* of *Rāvaṇa* was to be located in Sri Lanka, it would be practically cut off from *Bhāratavarṣa* being so far away but *Rāvaṇa* was said to create everyday problems for the sages living in *Janasthāna*, the southern area of *Bhāratavarṣa*.
8. The basic misunderstanding that perpetuates this bigger misunderstanding is the misinterpretation of the ancient Indian distance unit of the *Yojana*. One *Yojana* that actually means only 108 feet is now variously taken to mean 5-9 miles, owing to mistranslation of Vedic *Śaṃskṛt* numbers, resulting in great exaggerations of all stated distances, by many many times the original.

9. The *Citrakūṭa* hillock of *Rāmāyaṇa*, wrongly identified with the present-day city of Chitrakoot in Uttar Pradesh, is stated to be only about 2-3 Yojana south of *Prayāga* (*Gaṅgā-Yamuna* confluence in Allahabad) and hence can't be more than 324 feet away from the confluence at *Prayāga* whereas the present-day city of Chitrakoot is more than 120 Km. from here.

When the *Rāmāyaṇa* is read in original, it can be made out that *Rāma*, having once arrived in the *Dandaka* forest near *Janasthāna* (About Janeh, MP: 25°04'48"N, 81°36'27"E), never actually ventured far from there. On the few occasions when *Rāma* moved a little, like for a meeting with the sage *Agastya*, it was always a few Yojana, which would be about a kilometer at the maximum. Sage *Agastya* told *Rāma* to take up residence at *Pañcavaṭī*, a small site where 5 holy trees existed together and which was stated to be only 2 Yojana (216 feet) from his hermitage. But the place of this *Pañcavaṭī* (About Chakghat, MP: 25°02'34"N, 81°43'16"E) is wrongly identified with a town of same name near Nasik in Maharashtra which is about a 1200 Km. away from here. Just how many days would it take people, moving on foot, to travel 1200 Km. through the thick forests! It can be concluded reasonably well that neither the Panchavati of Nasik is the *Pañcavaṭī* of *Rāmāyaṇa*, nor the present-day river Godavari of Maharashtra is the *Godāvarī* of the *Rāmāyaṇa*. These have been named much later, only in error. Also, the *Kiṣkindhā* of *Rāmāyaṇa*, wrongly identified with the present-day Humpi in Bangalore (Karnataka), lay to the north of *Vindhyaśala*, and was near to the *Pampā* Lake (About Baraha Kalan, MP: 24°52'12"N, 81° 09'47"E).

To repeat, it should be firmly known that the regions below the *Vindhyaśala* mountain range were known as the *Pātāla*, the Nether lands. As the population grew, the *Pātāla* kept on 'shifting' south until there was no place to go further south, at which point *Pātāla* was taken to be located "under" the Earth. The seven *Pātāla* cities mentioned in the *Purāṇa* were just across the *Vindhya*, to its south.

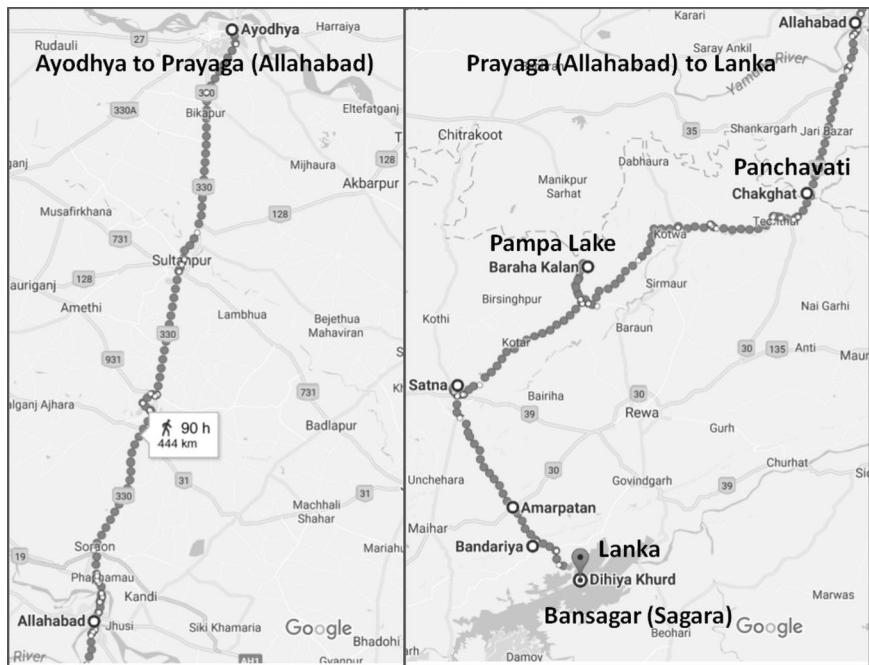


Figure 4.5
Route of *Rāma* to *Laṅkā* (The Most-likely)

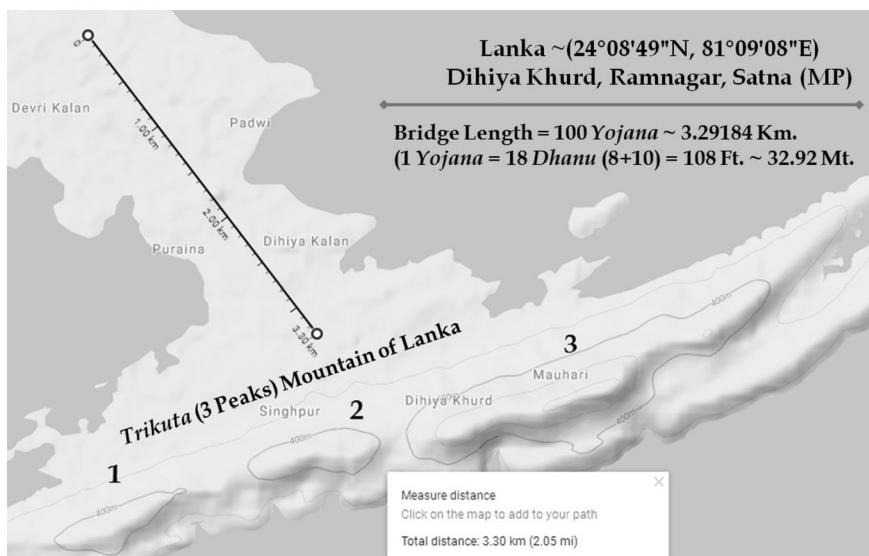


Figure 4.6
Laṅkā of *Rāvaṇa* (The Most-probable)

14. Best Verse of *Rāmāyaṇa*

There is a story in the *Kathā Sarita Sāgara* about a great Brahmin pundit by the name of Vararuci who was asked by his king to tell him the best verse of *Rāmāyaṇa*. Obviously, this was a trick question, fed in the ears of the king by an opponent of Vararuci to dishonor him, because all the verses of *Rāmāyaṇa* are so adeptly composed that it is impossible for anyone to pick a single one over the others. Was there really any verse in *Rāmāyaṇa* that could be considered better than the rest? When Vararuci gave this question a serious thought, he couldn't come up with anything and, seeking some time from the king, set out travelling the country taking the opinions of other Brahmin pundits.

Having found no one who could satisfactorily answer this puzzlesome question and noticing the near expiry of his time-limit, Vararuci was utterly dejected and greatly worried for the sake of protection of his reputation. One day, being tired, he slept under a forest tree when, about midnight, he heard a conversation, the voices of which seemed to be coming from the tree top. It's stated it was two deities talking to each other. One asked the other to accompany him to bless the delivery of a girl child nearby while the other replied stating that as long as the Brahmin Vararuci slept under the tree, he had to stay there, as he had prayed to gods for his protection before going to sleep. Vararuci, though intrigued by the conversation, fell asleep again. He was woken up again in early morning by the same voices that were now discussing the new-born girl child. The deity on that tree asked the other if he knew who was going to marry that girl-child when she grew up, to which the other deity replied that this Brahmin Vararuci, who now sleeps under this very tree and who doesn't know "*Mām Viddhi*" (माम विद्धि), is going to marry her. Then, the voices stopped. On obtaining this clue by divine providence, Vararuci recalled to his mind all the verses with the phrase of "*Mām Viddhi*" in them and shortlisted the verse that quoted the words of queen Sumitra when her son Laksmana came to bid her

goodbye at the start of *Rāma's* exile. Thinking the verse over and again and utterly satisfied by the beauty of its composition in its ability to convey many possible meanings, he rushed back to the king with his answer where he was greatly applauded and honored. The 3 possible interpretations of this verse, as given by *Vararuci* were:

रामं दशरथं विद्धि मां विद्धि जनकात्मजाम् । अयोध्यां अटविं विद्धि गच्छ तात यथासुखम् ॥ RM 2.40.9	
1	Know <i>Rāma</i> to be <i>Daśaratha</i> , know me to be <i>Janaka's daughter</i> (<i>Sītā</i>), As <i>Ayodhyā</i> , know the forest; depart O Son, as per your comfort.
2	Know <i>Rāma</i> to be one of 10 avatars, know the goddess <i>Lakshmi</i> to be the <i>Janaka's daughter</i> (<i>Sītā</i>), As <i>Ayodhyā</i> , know the forest; depart O Son, as per your comfort.
3	Know <i>Daśaratha</i> to be dead, know me departed to my mother's home, The <i>Ayodhyā</i> , forget (it); depart O Son, as per your comfort.

Appendix A

Stars of Nakṣatra Zodiac

The star names are defined in terms of the *Nakṣatrā*. The column names are thus: [**Mag** = Maginutude], [**MP** = Magnitude Points, 1/2/3/4 in increasing order of visibility], [**Lat** = Latitude], [**Lon(K)** = Longitude from the center of *Kṛttikā Nakṣatra*], [**Lon(A)** = Longitude from the start of Aries in Fixed 12-Sign Zodiac]. Here, Latitude has been chosen as $\pm 30^\circ$ because a 60° wide belt along the ecliptic represents the middle portion of the celestial sphere. Also, stars with Magnitude greater than 4, with few exceptions, have been ignored as they are visible to naked eye only with difficulty.

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
1	Krit-1 (deEri, Rana)	3.51	1	-28.673	355.636	25.636
2	Krit-2 (omiTau, Atirsagne)	3.60	1	-9.333	355.936	25.936
3	Krit-3 (xiTau, Ushakaron)	3.73	1	-8.798	356.685	26.685
4	Krit-4 (rhPer, Gorgona Tertia)	3.42	1	20.577	359.684	29.684
5	Krit-5 (bePer, Algol)	2.12	2	22.432	0.940	30.940
6	Krit-6 (omePer, Gorgona Quatra)	3.70	1	20.973	1.134	31.134
7	Krit-7 (kaPer, Misam)	3.80	1	26.085	2.465	32.465
8	Krit-8 (ioPer)	4.05	1	30.633	4.049	34.049
9	Krit-9 (17Tau, Electra)	3.71	1	4.192	4.185	34.185
10	Krit-10 (omi-1Eri, Beid)	4.04	1	-27.452	4.207	34.207
11	Krit-11 (20Tau, Maia)	3.87	1	4.392	4.453	34.453
12	Krit-12 (nuTau, Furibundus)	3.90	1	-14.450	4.692	34.692
13	Krit-13 (efTau, Alcyone)	2.87	2	4.053	4.765	34.765
14	Krit-14 (27Tau, Atlas)	3.62	1	3.919	5.129	35.129
15	Krit-15 (laTau, Althaur)	3.41	1	-7.958	5.407	35.407
16	Krit-16 (omiPer, Atiks)	3.86	1	12.187	5.916	35.916
17	Rohi-1 (alPer, Mirfak)	1.82	3	30.129	6.854	36.854
18	Rohi-2 (nuPer)	3.78	1	22.157	8.596	38.596
19	Rohi-3 (dePer)	2.99	2	27.305	9.575	39.575
20	Rohi-4 (xiPer, Menkib)	4.06	1	14.947	9.745	39.745
21	Rohi-5 (gaTau, Prima Hyadum)	3.65	1	-5.731	10.579	40.579
22	Rohi-6 (nuEri)	3.92	1	-25.122	11.589	41.589
23	Rohi-7 (de-1Tau, Secunda Hyadum)	3.76	1	-3.968	11.644	41.644
24	Rohi-8 (th-1Tau, Phaeo)	3.84	1	-5.743	12.729	42.729

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
25	Rohi-9 (th-2Tau, Phaesula)	3.41	1	-5.837	12.736	42.736
26	Rohi-10 (epTau, Ain)	3.54	1	-2.565	13.239	43.239
27	Rohi-11 (muEri)	4.00	1	-25.367	14.111	44.111
28	Rohi-12 (alTau, Aldebaran)	0.99	4	-5.466	14.563	44.563
29	Rohi-13 (pi-3Ori, Tabit)	3.19	1	-15.383	16.700	46.700
30	Rohi-14 (pi-4Ori, Tabit)	3.68	1	-16.770	16.874	46.874
31	Rohi-15 (pi-5Ori)	3.72	1	-20.003	17.265	47.265
32	Mrig-1 (beEri, Cursa)	2.79	2	-27.861	20.050	50.050
33	Mrig-2 (ioAur, Hasseleh)	2.69	2	10.457	21.413	51.413
34	Mrig-3 (taOri)	3.59	1	-29.836	22.621	52.621
35	Mrig-4 (zeAur, Haedi)	3.77	1	18.205	23.407	53.407
36	Mrig-5 (epAur, Maaz)	3.04	1	20.947	23.615	53.615
37	Mrig-6 (etAur, Hoedus II)	3.16	1	18.286	24.220	54.220
38	Mrig-7 (gaOri, Bellatrix)	1.64	3	-16.814	25.720	55.720
39	Mrig-8 (alAur, Capella)	0.08	4	22.865	26.632	56.632
40	Mrig-9 (deOri, Mintaka)	2.23	2	-23.551	27.136	57.136
41	Mrig-10 (beTau, Elnath)	1.68	3	5.387	27.348	57.348
42	Mrig-11 (ioOri, Hatsya)	2.77	2	-29.198	27.772	57.772
43	Mrig-12 (epOri, Alnilam)	1.70	3	-24.504	28.238	58.238
44	Mrig-13 (zeOri, Alnitak)	-2.00	4	-25.291	29.455	59.455
45	Mrig-14 (zeTau, Al Hecka)	3.03	1	-2.193	29.558	59.558
46	Mrig-15 (nuAur)	3.95	1	15.724	33.060	63.060
47	Ardr-1 (alOri, Betelgeuse)	0.42	4	-16.025	33.528	63.528
48	Ardr-2 (beAur, Menkalinan)	1.90	3	21.510	34.684	64.684
49	Ardr-3 (deAur, Prijipati)	3.72	1	30.847	34.695	64.695
50	Ardr-4 (thAur, Bogardus)	2.62	2	13.775	34.717	64.717
51	Ardr-5 (etGem, Propus etaGem)	3.32	1	-0.886	38.209	68.209
52	Ardr-6 (muGem, Tejat)	2.91	2	-0.818	40.076	70.076
53	Ardr-7 (gaGem, Alhena)	1.90	3	-6.741	43.878	73.878
54	Ardr-8 (epGem, Mebsuta)	3.02	1	2.072	44.712	74.712
55	Ardr-9 (thGem, Nageba)	3.60	1	11.032	45.897	75.897
56	Ardr-10 (xiGem, Alzirr)	3.40	1	-10.103	45.982	75.982
57	Puna-1 (zeGem, Mekbuda)	4.01	1	-2.037	49.763	79.763
58	Puna-2 (deGem, Wasat)	3.53	1	-0.176	53.292	83.292

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
59	Puna-3 (laGem, Kebash)	3.58	1	-5.633	53.552	83.552
60	Puna-4 (ioGem, Propus iotGem)	3.79	1	5.760	53.730	83.730
61	Puna-5 (upGem)	4.08	1	5.217	56.117	86.117
62	Puna-6 (beCMi, Gomeisa)	2.89	2	-13.485	56.964	86.964
63	Puna-7 (beGem, Pollux)	1.15	3	6.685	57.986	87.986
64	Puna-8 (kaGem, Al Krikab)	3.57	1	3.080	58.439	88.439
65	Push-1 (alCMi, Procyon)	0.34	4	-16.022	60.556	90.556
66	Push-2 (alMon)	3.93	1	-30.450	64.053	94.053
67	Push-3 (ioUMa, Talitha Borealis)	3.10	1	29.574	67.572	97.572
68	Push-4 (kaUMa, Talitha Australis)	3.60	1	28.979	68.711	98.711
69	Push-5 (beCnc, Al Tarf)	3.52	1	-10.286	69.029	99.029
70	Push-6 (ioCnc, Decapoda)	4.03	1	10.427	71.119	101.119
71	Push-7 (M44, Praesepe Cluster)	3.70	1	1.565	71.974	101.974
72	Ashl-1 (deCnc, Asellus Australis)	3.94	1	0.078	73.494	103.494
73	Ashl-2 (38Lyn, Maculosa)	3.82	1	20.100	75.344	105.344
74	Ashl-3 (alLyn, Alvashak)	3.16	1	17.964	76.614	106.614
75	Ashl-4 (epHya, Ashlesha)	3.38	1	-11.102	77.115	107.115
76	Ashl-5 (zeHya, Hydrobius)	3.13	1	-10.967	79.347	109.347
77	Ashl-6 (laUMa, Tania Borealis)	3.44	1	29.884	84.322	114.322
78	Ashl-7 (thHya)	3.88	1	-13.051	85.060	115.060
79	Ashl-8 (epLeo, Ras Elased Australis)	2.98	2	9.716	85.476	115.476
80	Ashl-9 (muUMa, Tania Australis)	3.07	1	28.997	86.007	116.007
81	Ashl-10 (muLeo, Ras Elased Borealis)	3.88	1	12.349	86.201	116.201
82	Magh-1 (alHya, Alphard)	2.00	2	-22.379	92.049	122.049
83	Magh-2 (zeLeo, Adhafera)	3.44	1	11.865	92.337	122.337
84	Magh-3 (ioHya)	3.91	1	-14.275	92.413	122.413
85	Magh-4 (etLeo, Algieba)	3.51	1	4.866	92.676	122.676
86	Magh-5 (ga-1Leo, Algieba)	2.12	2	8.815	94.388	124.388
87	Magh-6 (alLeo, Regulus)	1.35	3	0.466	94.599	124.599
88	PPha-1 (rhLeo, Shir)	3.87	1	0.150	101.159	131.159
89	PPha-2 (nuUMa, Alula Borealis)	3.50	1	26.161	101.425	131.425
90	PPha-3 (laHya)	3.61	1	-22.012	104.135	134.135
91	PPha-4 (deLeo, Dhur)	2.56	2	14.332	106.088	136.088
92	PPha-5 (thLeo, Coxa)	3.32	1	9.673	108.193	138.193

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
93	PPha-6 (muHya)	3.83	1	-24.669	109.804	139.804
94	PPha-7 (ioLeo, Tse Tseng)	4.00	1	6.105	112.336	142.336
95	UPha-1 (siLeo, Shishimai)	4.04	1	1.697	113.474	143.474
96	UPha-2 (nuHya, Pleura)	3.11	1	-21.795	115.134	145.134
97	UPha-3 (beLeo, Denebola)	2.14	2	12.264	116.385	146.385
98	UPha-4 (alCrt, Alkes)	4.07	1	-22.714	118.454	148.454
99	UPha-5 (nuVir)	4.05	1	4.585	118.928	148.928
100	UPha-6 (deCrt, Labrum)	3.56	1	-17.570	121.453	151.453
101	UPha-7 (beVir, Zavijava)	3.61	1	0.694	121.936	151.936
102	UPha-8 (beCrt, Alsharasif)	-22.00	4	-25.636	123.322	153.322
103	UPha-9 (gaCrt)	4.08	1	-19.665	124.001	154.001
104	Hast-1 (etVir, Zaniah)	3.89	1	1.365	129.599	159.599
105	Hast-2 (epVir, Vindemiatrix)	2.83	2	16.202	134.706	164.706
106	Hast-3 (gaVir, Porrima)	2.74	2	2.789	134.905	164.905
107	Hast-4 (gaCrv, Gienah Corvi)	2.59	2	-14.500	135.491	165.491
108	Hast-5 (deVir, Auva)	3.38	1	8.611	136.226	166.226
109	Hast-6 (epCrv, Minkar)	3.02	1	-19.672	136.431	166.431
110	Hast-7 (alCrv, Alchiba)	4.00	1	-21.748	137.011	167.011
111	Hast-8 (deCrv, Algorab)	2.95	2	-12.197	138.217	168.217
112	Chit-1 (beCrv, Kraz)	2.65	2	-18.044	142.133	172.133
113	Chit-2 (etBoo, Mufrid)	2.68	2	28.072	144.104	174.104
114	Chit-3 (zeVir, Heze)	3.40	1	8.634	146.899	176.899
115	Chit-4 (alVir, Spica)	1.04	3	-2.056	148.607	178.607
116	Chit-5 (gaHya, Cauda Hydræ)	3.00	2	-13.743	151.783	181.783
117	Svat-1 (ioCen, Alhakim)	2.70	2	-26.017	157.891	187.891
118	Svat-2 (109Vir)	3.72	1	17.098	163.281	193.281
119	Svat-3 (piHya, Sataghni)	3.26	1	-13.051	163.388	193.388
120	Svat-4 (muVir, Rijl al Awwa)	3.90	1	9.668	164.896	194.896
121	Svat-5 (nuCen, Kabkent Secunda)	3.39	1	-28.268	165.917	195.917
122	Svat-6 (muCen)	3.46	1	-28.979	166.299	196.299
123	Vish-1 (thCen, Menkent)	2.06	2	-22.083	167.070	197.070
124	Vish-2 (phCen, Kabkent Tertia)	3.81	1	-28.000	167.801	197.801
125	Vish-3 (al-2Lib, Zubenelgenubi)	2.75	2	0.331	169.846	199.846
126	Vish-4 (psCen)	4.05	1	-22.502	170.448	200.448

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
127	Vish-5 (deSer, Qin)	0.00	4	28.877	173.105	203.105
128	Vish-6 (beLib, Zubeneshamali)	2.61	2	8.493	174.135	204.135
129	Vish-7 (etCen)	2.32	2	-25.513	175.011	205.011
130	Vish-8 (siLib, Brachium)	3.30	1	-7.646	175.450	205.450
131	Vish-9 (alSer, Unukalhai)	2.63	2	25.505	176.839	206.839
132	Vish-10 (alLup, Kakkab)	2.28	2	-30.026	178.265	208.265
133	Vish-11 (epSer, Nulla Pambu)	3.71	1	24.004	179.095	209.095
134	Vish-12 (kaCen, Ke Kwan)	3.13	1	-24.032	179.557	209.557
135	Vish-13 (beLup, Kekouan)	2.67	2	-25.047	179.787	209.787
136	Vish-14 (gaLib, Zubenelakrab)	3.93	1	4.384	179.901	209.901
137	Anur-1 (muSer, Leiolepis)	3.55	1	16.235	180.702	210.702
138	Anur-2 (ph-1Lup)	3.58	1	-17.180	182.256	212.256
139	Anur-3 (upLib)	3.61	1	-8.509	183.372	213.372
140	Anur-4 (deLup, Hilasmus)	3.20	1	-21.427	183.419	213.419
141	Anur-5 (taLib)	3.64	1	-10.022	184.113	214.113
142	Anur-6 (ka-1Lup)	3.85	1	-29.655	184.233	214.233
143	Anur-7 (xiSco, Grafias)	-10.00	4	9.231	186.069	216.069
144	Anur-8 (gaLup, Thusia)	2.77	2	-21.245	186.260	216.260
145	Anur-9 (deOph, Yed Prior)	2.74	2	17.238	187.065	217.065
146	Anur-10 (deSco, Dschubba)	2.29	2	-1.988	187.334	217.334
147	Anur-11 (chLup)	3.96	1	-13.181	187.603	217.603
148	Anur-12 (piSco)	2.89	2	-5.477	187.702	217.702
149	Anur-13 (rhSco)	3.86	1	-8.601	187.909	217.909
150	Anur-14 (epOph, Yed Posterior)	3.24	1	16.437	188.273	218.273
151	Anur-15 (ome-1Sco, Jabhat al Akrab)	3.95	1	0.218	188.432	218.432
152	Anur-16 (nuSco, Jabbah)	4.00	1	1.631	189.406	219.406
153	Anur-17 (laOph, Marfik)	3.90	1	23.553	190.356	220.356
154	Anur-18 (siSco, Alniyat)	2.91	2	-4.039	192.562	222.562
155	Jyes-1 (zeOph, Han)	2.58	2	11.389	193.992	223.992
156	Jyes-2 (alSco, Antares)	1.09	3	-4.572	194.524	224.524
157	Jyes-3 (taSco)	2.81	2	-6.122	196.219	226.219
158	Jyes-4 (ga-2Nor)	4.02	1	-28.265	196.829	226.829
159	Jyes-5 (epSco, Wei)	2.29	2	-11.742	200.094	230.094
160	Jyes-6 (mu-1Sco)	2.98	2	-15.425	200.917	230.917

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
161	Jyes-7 (ze-2Sco)	3.62	1	-19.647	201.998	231.998
162	Jyes-8 (etOph, Sabik)	2.43	2	7.196	202.732	232.732
163	Jyes-9 (ep-1Ara)	4.07	1	-30.268	204.339	234.339
164	Jyes-10 (etSco)	3.33	1	-20.187	205.505	235.505
165	Jyes-11 (thOph, Imad)	3.25	1	-1.846	206.157	236.157
166	Mula-1 (upSco, Lesath)	2.70	2	-14.011	208.774	238.774
167	Mula-2 (xiSer, Nehushtan)	3.54	1	7.932	209.308	239.308
168	Mula-3 (laSco, Shaula)	1.62	3	-13.791	209.347	239.347
169	Mula-4 (alAra, Ara)	2.84	2	-26.563	209.695	239.695
170	Mula-5 (beOph, Celbalrai)	2.75	2	27.938	210.098	240.098
171	Mula-6 (thSco, Sargas)	1.86	3	-19.647	210.361	240.361
172	Mula-7 (kaSco, Girtab)	2.38	2	-15.647	211.231	241.231
173	Mula-8 (gaOph, Al Durajah)	3.75	1	26.108	211.394	241.394
174	Mula-9 (io-1Sco)	3.02	1	-16.717	212.284	242.284
175	Mula-10 (M7, Acumen)	3.30	1	-11.353	213.463	243.463
176	Mula-11 (nuOph, Sinistra)	3.31	1	13.663	214.515	244.515
177	Mula-12 (thAra)	3.66	1	-26.661	215.951	245.951
178	Mula-13 (ga-2Sgr, Alnasl)	2.99	2	-6.994	216.023	246.023
179	Mula-14 (muSgr, Polis)	3.84	1	2.340	217.975	247.975
180	Mula-15 (etSgr, Sephdar)	3.11	1	-13.381	218.389	248.389
181	Mula-16 (deSgr, Kaus Medis)	2.71	2	-6.475	219.343	249.343
182	Mula-17 (alTel)	3.48	1	-22.651	219.835	249.835
183	Mula-18 (epSgr, Kaus Australis)	1.80	3	-11.055	219.840	249.840
184	PAsh-1 (etSer, Tang)	3.26	1	20.430	220.438	250.438
185	PAsh-2 (laSgr, Kaus Borealis)	2.83	2	-2.139	221.079	251.079
186	PAsh-3 (alSct)	3.85	1	14.917	223.778	253.778
187	PAsh-4 (phSgr, Nanto)	3.16	1	-3.956	224.944	254.944
188	PAsh-5 (siSgr, Nunki)	2.06	2	-3.452	227.147	257.147
189	PAsh-6 (xi-2Sgr)	3.53	1	1.659	228.213	258.213
190	PAsh-7 (zeSgr, Ascella)	2.61	2	-7.181	228.400	258.400
191	PAsh-8 (taSgr, Hecatebolus)	3.32	1	-5.092	229.596	259.596
192	PAsh-9 (omiSgr, Manubrium)	3.77	1	0.858	229.756	259.756
193	PAsh-10 (be-1Sgr, Arkab Prior)	3.95	1	-22.147	230.538	260.538
194	PAsh-11 (12Aql, Bered)	4.03	1	16.844	230.808	260.808

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
195	PAsh-12 (piSgr, Albaldah)	2.89	2	1.435	231.014	261.014
196	PAsh-13 (alSgr, Rukbat)	3.95	1	-18.383	231.398	261.398
197	PAsh-14 (laAql, Al Thalimaim Anterior)	3.43	1	17.564	232.094	262.094
198	UAsh-1 (deAql, Al Mizan)	3.40	1	24.816	238.400	268.400
199	UAsh-2 (alInd)	3.12	1	-27.757	243.867	273.867
200	UAsh-3 (etAql, Bazak)	3.88	1	21.523	245.196	275.196
201	UAsh-4 (alAql, Altair)	0.77	4	29.304	246.541	276.541
202	Shra-1 (beAql, Alshain)	3.71	1	26.657	247.185	277.185
203	Shra-2 (al-2Cap, Algiedi)	3.59	1	6.929	248.622	278.622
204	Shra-3 (beCap, Dabih)	3.08	1	4.587	248.810	278.810
205	Shra-4 (thAql, Tseen Foo)	3.24	1	18.727	249.676	279.676
206	Shra-5 (epAqr, Albali)	3.77	1	8.079	256.486	286.486
207	Shra-6 (thCap, Dorsum)	4.07	1	-0.588	258.608	288.608
208	Shra-7 (epDel, Deneb Dulphim)	4.03	1	29.074	258.823	288.823
209	Dhan-1 (zeCap, Marakk)	3.75	1	-6.993	261.701	291.701
210	Dhan-2 (gaGru, Al Dhanab)	3.01	1	-23.054	262.184	292.184
211	Dhan-3 (gaCap, Nashira)	3.68	1	-2.559	266.556	296.556
212	Dhan-4 (alEqu, Kitalpha)	3.95	1	20.122	267.881	297.881
213	Dhan-5 (beAqr, Sadalsuud)	2.91	2	8.614	268.159	298.159
214	Dhan-6 (deCap, Deneb Algiedi)	2.87	2	-2.605	268.308	298.308
215	Shat-1 (epPeg, Enif)	2.40	2	22.101	276.649	306.649
216	Shat-2 (alAqr, Sadalmelek)	2.95	2	10.662	278.117	308.117
217	Shat-3 (alPsA, Fomalhaut)	1.16	3	-21.140	278.627	308.627
218	Shat-4 (gaAqr, Sadalachbia)	3.85	1	8.235	281.480	311.480
219	Shat-5 (thPeg, Biham)	3.50	1	16.341	281.599	311.599
220	Shat-6 (ta-2Aqr)	4.05	1	-5.666	283.361	313.361
221	Shat-7 (deAqr, Skat)	3.27	1	-8.193	283.639	313.639
222	Shat-8 (ze-1Aqr, Sadaltager)	0.00	4	8.846	283.676	313.676
223	Shat-9 (88Aqr)	3.66	1	-14.492	284.784	314.784
224	Shat-10 (etAqr, Hydria)	4.03	1	8.147	285.169	315.169
225	Shat-11 (laAqr, Hydor)	3.77	1	-0.387	286.342	316.342
226	PBha-1 (98Aqr)	3.97	1	-14.789	288.223	318.223
227	PBha-2 (zePeg, Homam)	3.40	1	17.681	290.917	320.917
228	PBha-3 (gaPsc, Simmah)	3.69	1	7.256	296.223	326.223

No	Star Name	Mag	MP	Lat	Lon(K)	Lon(A)
229	PBha-4 (laPeg, Sadalbari)	3.96	1	28.799	297.821	327.821
230	PBha-5 (alPeg, Markab)	2.49	2	19.408	298.252	328.252
231	PBha-6 (muPeg)	3.51	1	29.389	299.152	329.152
232	UBha-1 (ioCet, Deneb Kaitos)	3.56	1	-10.023	305.684	335.684
233	UBha-2 (omePsc, Vernalis)	4.04	1	6.363	307.352	337.352
234	UBha-3 (beCet, Diphda)	2.04	2	-20.786	307.353	337.353
235	Reva-1 (gaPeg, Algenib)	2.83	2	12.602	313.924	343.924
236	Reva-2 (etCet, Deneb Algenubi)	3.45	1	-16.120	316.538	346.538
237	Reva-3 (alAnd, Alpheratz)	2.06	2	25.683	319.077	349.077
238	Reva-4 (thCet, Altawk)	3.60	1	-15.769	320.995	350.995
239	Reva-5 (taCet)	3.50	1	-24.810	322.583	352.583
240	Reva-6 (deAnd)	3.28	1	24.353	326.583	356.583
241	Ashv-1 (etPsc, Al Pherg)	3.62	1	5.379	331.586	1.586
242	Ashv-2 (muAnd)	3.87	1	29.662	333.946	3.946
243	Ashv-3 (alPsc, Alrischa)	2.00	3	-9.060	334.150	4.150
244	Ashv-4 (beAnd, Mirach)	2.06	2	25.946	335.176	5.176
245	Ashv-5 (omiCet, Mira)	3.04	1	-15.938	336.293	6.293
246	Ashv-6 (beAri, Sheratan)	2.64	2	8.489	338.741	8.741
247	Ashv-7 (zeCet, Baten Kaitos)	3.74	1	-20.336	326.721	356.721
248	Bhar-1 (alTri, Ras Mutallah)	3.41	1	16.802	341.631	11.631
249	Bhar-2 (deCet, Phycochroma)	4.07	1	-14.461	342.343	12.343
250	Bhar-3 (alAri, Hamal)	2.00	3	9.966	342.434	12.434
251	Bhar-4 (upAnd, Adhab)	4.09	1	28.983	343.319	13.319
252	Bhar-5 (etEri, Azha)	3.89	1	-24.548	343.522	13.522
253	Bhar-6 (gaCet, Kaffaljidhma)	3.47	1	-11.996	344.204	14.204
254	Bhar-7 (beTri)	3.00	2	20.583	347.124	17.124
255	Bhar-8 (gaTri)	4.00	1	18.951	348.290	18.290
256	Bhar-9 (ga-1And, Almaak)	2.26	2	27.810	348.997	18.997
257	Bhar-10 (alCet, Menkar)	2.51	2	-12.585	349.092	19.092
258	Bhar-11 (epEri)	3.73	1	-27.714	352.936	22.936
259	Bhar-12 (41Ari)	3.61	1	10.452	352.975	22.975

Table A.1
Stars in the Original *Nakṣatra* Zodiac

Appendix B

Mahā-Yuga & Yuga Tables

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 01 (Yugā 1-24)</i>					
20.01.-4173 12:12:00	26.01.-4168 04:15:48	29.01.-4163 06:33:09	03.02.-4158 22:34:48	08.02.-4153 04:50:10	13.02.-4148 12:22:02
18.01.-4143 21:07:05	23.01.-4138 08:13:05	28.01.-4133 20:52:00	02.02.-4128 00:33:05	06.02.-4123 17:16:47	10.02.-4118 21:02:49
17.01.-4113 16:25:01	22.01.-4108 12:40:50	26.01.-4103 04:41:26	31.01.-4098 13:04:01	04.02.-4093 19:12:59	10.02.-4088 11:00:13
15.01.-4083 03:34:18	20.01.-4078 13:27:03	25.01.-4073 04:04:30	30.01.-4068 01:40:02	03.02.-4063 04:58:38	07.02.-4058 14:35:56
<i>Mahā-Yuga 02 (Yugā 25-48)</i>					
14.01.-4053 17:06:32	18.01.-4048 19:38:32	23.01.-4043 10:09:19	27.01.-4038 19:09:27	01.02.-4033 23:08:36	06.02.-4028 20:14:50
11.01.-4023 19:21:34	17.01.-4018 10:32:08	21.01.-4013 12:49:53	27.01.-4008 05:53:55	30.01.-4003 10:33:40	04.02.-3998 20:34:15
11.01.-3993 02:18:28	15.01.-3988 15:54:55	20.01.-3983 02:45:29	24.01.-3978 07:19:53	30.01.-3973 00:12:22	03.02.-3968 02:59:09
09.01.-3963 00:30:35	13.01.-3958 17:43:59	18.01.-3953 12:51:28	23.01.-3948 18:31:23	27.01.-3943 02:40:33	01.02.-3938 17:23:20
<i>Mahā-Yuga 03 (Yugā 49-72)</i>					
07.01.-3933 09:13:05	12.01.-3928 21:10:16	16.01.-3923 09:18:14	21.01.-3918 09:58:34	26.01.-3913 10:14:20	30.01.-3908 22:35:47
05.01.-3903 23:13:26	10.01.-3898 01:43:40	15.01.-3893 17:22:59	20.01.-3888 00:43:01	24.01.-3883 07:16:59	29.01.-3878 01:37:28 (62)
02.02.-3873 19:16:37	08.02.-3868 02:18:24	11.02.-3863 09:04:11	17.02.-3858 00:36:40	21.02.-3853 03:03:46	26.02.-3848 18:54:32
31.01.-3843 16:33:41	05.02.-3838 16:43:43	10.02.-3833 17:44:04	15.02.-3828 04:59:41	19.02.-3823 17:31:46	23.02.-3818 20:36:54
<i>Mahā-Yuga 04 (Yugā 73-96)</i>					
31.01.-3813 00:47:16	04.02.-3808 07:42:01	08.02.-3803 14:20:58	13.02.-3798 08:32:14	18.02.-3793 02:01:26	23.02.-3788 09:17:51
28.01.-3783 02:52:19	02.02.-3778 19:43:46	06.02.-3773 23:43:30	12.02.-3768 11:17:35	15.02.-3763 23:31:12	20.02.-3758 23:27:28
27.01.-3753 15:41:35	31.01.-3748 21:30:39	05.02.-3743 13:32:35	09.02.-3738 16:32:36	15.02.-3733 07:10:34	19.02.-3728 15:07:23
25.01.-3723 03:32:29	30.01.-3718 07:39:43	03.02.-3713 16:47:01	09.02.-3708 06:45:46	12.02.-3703 09:50:39	18.02.-3698 02:13:46

Table B.1
Starting NMPs of *Yugā* (1-96) and *Mahā-Yugā* (1-4)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 05 (Yugā 97-120)</i>					
23.01.-3693 21:58:39	29.01.-3688 00:55:34	01.02.-3683 23:07:59	06.02.-3678 13:00:58	11.02.-3673 23:22:56	16.02.-3668 03:53:35
22.01.-3663 07:58:59	26.01.-3658 13:15:53	31.01.-3653 22:25:22	05.02.-3648 14:01:05	09.02.-3643 10:15:46	14.02.-3638 15:03:13
20.01.-3633 09:25:16	26.01.-3628 02:36:57	29.01.-3623 05:28:26	03.02.-3618 19:13:26	08.02.-3613 04:59:06	13.02.-3608 07:54:37
18.01.-3603 21:07:01	23.01.-3598 04:42:54	28.01.-3593 19:56:29	01.02.-3588 22:46:09	06.02.-3583 14:46:27	10.02.-3578 20:41:43
<i>Mahā-Yuga 06 (Yugā 121-144)</i>					
17.01.-3573 11:45:47	22.01.-3568 12:50:01	26.01.-3563 00:36:25	31.01.-3558 12:36:28	04.02.-3553 16:44:41	10.02.-3548 09:15:13
15.01.-3543 03:20:13	20.01.-3538 09:00:05	25.01.-3533 04:20:44	29.01.-3528 21:09:16	03.02.-3523 04:54:52	07.02.-3518 11:20:52
14.01.-3513 14:45:20	18.01.-3508 18:54:28	23.01.-3503 06:11:42	27.01.-3498 19:22:54	01.02.-3493 18:28:15	06.02.-3488 20:32:54
11.01.-3483 16:04:07	17.01.-3478 09:03:23	21.01.-3473 11:20:08	27.01.-3468 02:44:05	30.01.-3463 10:24:11	04.02.-3458 16:08:05
<i>Mahā-Yuga 07 (Yugā 145-168)</i>					
11.01.-3453 02:18:47	15.01.-3448 11:56:50	20.01.-3443 01:59:15	24.01.-3438 05:01:00	29.01.-3433 21:58:12	03.02.-3428 02:13:26
08.01.-3423 19:49:33	13.01.-3418 17:45:33	18.01.-3413 08:26:12	23.01.-3408 18:10:26	26.01.-3403 23:37:55	01.02.-3398 15:55:24
07.01.-3393 08:35:02	12.01.-3388 16:52:24	16.01.-3383 09:18:41	21.01.-3378 05:18:09	26.01.-3373 10:09:45	30.01.-3368 18:52:49
05.01.-3363 21:05:47	10.01.-3358 00:33:26	15.01.-3353 13:40:55	20.01.-3348 00:36:56	24.01.-3343 02:35:42	29.01.-3338 01:47:19
<i>Mahā-Yuga 08 (Yugā 169-192)</i>					
03.01.-3333 22:50:42	09.01.-3328 15:06:07	12.01.-3323 17:17:04	18.01.-3318 09:51:41	22.01.-3313 15:51:47	28.01.-3308 00:06:07
02.01.-3303 07:21:24	06.01.-3298 19:12:24	12.01.-3293 07:45:48	16.01.-3288 11:21:42	21.01.-3283 04:46:24	25.01.-3278 07:50:56 (62)
30.01.-3273 21:06:53	04.02.-3268 07:39:48	08.02.-3263 09:40:44	13.02.-3258 08:51:32	17.02.-3253 21:44:06	23.02.-3248 09:03:15
28.01.-3243 00:57:58	02.02.-3238 16:55:28	06.02.-3233 23:12:08	12.02.-3228 07:02:19	15.02.-3223 23:44:02	20.02.-3218 18:54:01

Table B.2

Starting NMPs of *Yugā* (97-192) and *Mahā-Yugā* (5-8)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 09 (Yugā 193-216)</i>					
27.01.-3213 14:57:56	31.01.-3208 18:54:36	05.02.-3203 11:30:35	09.02.-3198 15:31:22	15.02.-3193 03:33:59	19.02.-3188 15:04:18
24.01.-3183 22:55:44	30.01.-3178 07:18:58	03.02.-3173 13:28:22	09.02.-3168 05:21:21	12.02.-3163 08:15:15	17.02.-3158 23:19:37
23.01.-3153 21:57:54	28.01.-3148 20:05:41	01.02.-3143 23:08:19	06.02.-3138 08:58:41	11.02.-3133 22:35:23	16.02.-3128 01:31:31
22.01.-3123 04:30:19	26.01.-3118 12:58:14	31.01.-3113 17:44:27	05.02.-3108 14:11:28	09.02.-3103 05:41:19	14.02.-3098 14:50:31
<i>Mahā-Yuga 10 (Yugā 217-240)</i>					
20.01.-3093 07:01:22	26.01.-3088 00:01:20	29.01.-3083 04:36:30	03.02.-3078 15:05:50	08.02.-3073 04:59:20	13.02.-3068 03:10:25
18.01.-3063 20:30:17	23.01.-3058 01:35:20	28.01.-3053 18:09:31	01.02.-3048 21:15:01	06.02.-3043 11:25:15	10.02.-3038 20:19:40
17.01.-3033 06:56:12	22.01.-3028 12:27:53	25.01.-3023 20:49:13	31.01.-3018 11:25:27	04.02.-3013 14:34:52	10.02.-3008 06:39:04
15.01.-3003 03:01:11	20.01.-2998 04:08:51	25.01.-2993 04:11:29	29.01.-2988 16:45:38	03.02.-2983 04:13:16	07.02.-2978 08:27:32
<i>Mahā-Yuga 11 (Yugā 241-264)</i>					
14.01.-2973 11:30:33	18.01.-2968 18:15:50	23.01.-2963 01:37:29	27.01.-2958 19:20:57	01.02.-2953 13:39:19	06.02.-2948 20:18:53
11.01.-2943 13:09:48	17.01.-2938 06:42:34	21.01.-2933 10:03:11	26.01.-2928 22:46:24	30.01.-2923 10:12:06	04.02.-2918 11:15:57
11.01.-2913 01:46:47	15.01.-2908 08:16:26	20.01.-2903 00:27:20	24.01.-2898 03:00:01	29.01.-2893 18:50:15	03.02.-2888 01:33:40
08.01.-2883 14:50:56	13.01.-2878 17:22:39	18.01.-2873 04:09:48	23.01.-2868 17:10:50	26.01.-2863 20:55:44	01.02.-2858 13:36:02
<i>Mahā-Yuga 12 (Yugā 265-288)</i>					
07.01.-2853 07:54:47	12.01.-2848 12:02:54	16.01.-2843 09:01:21	21.01.-2838 00:34:02	26.01.-2833 09:31:15	30.01.-2828 15:29:06
05.01.-2823 18:06:27	09.01.-2818 23:32:20	15.01.-2813 09:13:51	20.01.-2808 00:21:41	23.01.-2803 21:37:28	29.01.-2798 01:27:59
03.01.-2793 19:26:58	09.01.-2788 12:56:10	12.01.-2783 15:37:08	18.01.-2778 06:04:00	22.01.-2773 15:23:02	27.01.-2768 19:13:35
02.01.-2763 06:51:28	06.01.-2758 15:02:00	12.01.-2753 06:22:06	16.01.-2748 08:52:45	21.01.-2743 01:51:02	25.01.-2738 06:50:18

Table B.3Starting NMPs of *Yugā* (193-288) and *Mahā-Yugā* (9-12)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 13 (Yugā 289-312)</i>					
31.12.-2734 22:38:33	05.01.-2728 22:08:57	09.01.-2723 11:32:06	14.01.-2718 22:39:18	19.01.-2713 03:21:07	24.01.-2708 20:11:57
29.12.-2704 12:45:18	03.01.-2698 19:48:01	08.01.-2693 13:39:16	13.01.-2688 08:24:46	17.01.-2683 14:33:35	21.01.-2678 22:34:42 (62)
27.01.-2673 13:29:47	31.01.-2668 16:38:08	05.02.-2663 08:37:08	09.02.-2658 14:33:06	14.02.-2653 23:18:08	19.02.-2648 14:48:21
24.01.-2643 18:26:05	30.01.-2638 06:18:06	03.02.-2633 10:30:09	09.02.-2628 03:09:14	12.02.-2623 06:49:57	17.02.-2618 19:37:56
<i>Mahā-Yuga 14 (Yugā 313-336)</i>					
23.01.-2613 21:39:50	28.01.-2608 15:10:42	01.02.-2603 22:33:17	06.02.-2598 05:12:36	11.02.-2593 21:02:46	15.02.-2588 23:27:59
22.01.-2583 00:14:55	26.01.-2578 12:32:54	31.01.-2573 12:43:07	05.02.-2568 13:56:14	09.02.-2563 01:12:12	14.02.-2558 13:57:12
20.01.-2553 04:53:25	25.01.-2548 20:34:51	29.01.-2543 03:45:46	03.02.-2538 10:20:59	08.02.-2533 04:46:05	12.02.-2528 22:17:44
18.01.-2523 19:12:35	22.01.-2518 22:44:38	28.01.-2513 15:32:51	01.02.-2508 19:52:08	06.02.-2503 07:16:19	10.02.-2498 19:51:26
<i>Mahā-Yuga 15 (Yugā 337-360)</i>					
17.01.-2493 02:06:18	22.01.-2488 11:31:49	25.01.-2483 17:17:39	31.01.-2478 09:27:58	04.02.-2473 12:39:52	10.02.-2468 03:12:26
15.01.-2463 02:28:25	19.01.-2458 23:02:35	25.01.-2453 03:34:03	29.01.-2448 12:32:36	03.02.-2443 02:47:39	07.02.-2438 05:53:52
14.01.-2433 07:26:33	18.01.-2428 17:34:49	22.01.-2423 20:32:19	27.01.-2418 18:58:05	01.02.-2413 08:51:31	06.02.-2408 19:25:08
11.01.-2403 10:34:10	17.01.-2398 03:27:11	21.01.-2393 08:54:29	26.01.-2388 18:05:35	30.01.-2383 09:47:42	04.02.-2378 06:11:04
<i>Mahā-Yuga 16 (Yugā 361-384)</i>					
11.01.-2373 00:36:45	15.01.-2368 04:53:51	19.01.-2363 22:02:16	24.01.-2358 01:12:16	29.01.-2353 14:52:15	03.02.-2348 00:49:46
08.01.-2343 09:43:51	13.01.-2338 16:28:54	18.01.-2333 00:08:17	23.01.-2328 15:24:14	26.01.-2323 18:29:12	01.02.-2318 10:25:08
07.01.-2313 07:05:47	12.01.-2308 06:51:59	16.01.-2303 08:16:22	20.01.-2298 19:58:56	26.01.-2293 08:11:56	30.01.-2288 12:22:31
05.01.-2283 14:15:48	09.01.-2278 22:30:44	15.01.-2273 04:14:00	19.01.-2268 23:45:01	23.01.-2263 16:35:04	29.01.-2258 00:33:44

Table B.4

Starting NMPs of *Yugā* (289-384) and *Mahā-Yugā* (13-16)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 17 (Yugā 385-408)</i>					
03.01.-2253 16:23:30	09.01.-2248 09:52:28	12.01.-2243 14:05:12	18.01.-2238 01:32:52	22.01.-2233 14:44:17	27.01.-2228 14:01:06
02.01.-2223 05:45:04	06.01.-2218 11:09:57	12.01.-2213 04:08:39	16.01.-2208 06:36:40	20.01.-2203 22:05:13	25.01.-2198 05:49:50
31.12.-2194 17:20:30	05.01.-2188 21:15:09	09.01.-2183 07:01:20	14.01.-2178 21:04:49	19.01.-2173 00:20:54	24.01.-2168 17:15:55
29.12.-2164 11:37:00	03.01.-2158 14:37:06	08.01.-2153 12:48:19	13.01.-2148 03:26:33	17.01.-2143 13:21:11	21.01.-2138 18:55:26
<i>Mahā-Yuga 18 (Yugā 409-432)</i>					
28.12.-2134 20:45:59	02.01.-2128 03:23:03	06.01.-2123 11:44:05	11.01.-2118 04:21:06	16.01.-2113 00:19:13	21.01.-2108 05:23:54
25.12.-2104 22:22:01	31.12.-2099 15:52:41	04.01.-2093 19:18:07	10.01.-2088 08:37:41	13.01.-2083 19:34:13	18.01.-2078 21:43:43 (62)
23.01.-2073 20:57:53	28.01.-2068 10:15:54	01.02.-2063 21:20:14	06.02.-2058 01:43:24	11.02.-2053 18:39:03	15.02.-2048 21:36:43
21.01.-2043 19:19:26	26.01.-2038 11:54:29	31.01.-2033 07:27:39	05.02.-2028 13:09:14	08.02.-2023 20:56:56	14.02.-2018 12:15:35
<i>Mahā-Yuga 19 (Yugā 433-456)</i>					
20.01.-2013 02:55:36	25.01.-2008 16:18:31	29.01.-2003 02:51:08	03.02.-1998 05:09:33	08.02.-1993 04:09:16	12.02.-1988 17:28:06
18.01.-1983 17:09:35	22.01.-1978 20:07:26	28.01.-1973 12:03:22	01.02.-1968 18:30:38	06.02.-1963 02:29:57	10.02.-1958 19:07:58
16.01.-1953 21:22:58	22.01.-1948 09:55:48	25.01.-1943 14:03:17	31.01.-1938 06:40:14	04.02.-1933 10:50:36	09.02.-1928 23:01:24
15.01.-1923 01:35:10	19.01.-1918 17:53:35	25.01.-1913 02:19:45	29.01.-1908 08:36:14	03.02.-1903 00:36:11	07.02.-1898 03:31:34
<i>Mahā-Yuga 20 (Yugā 457-480)</i>					
14.01.-1893 02:39:29	18.01.-1888 16:41:03	22.01.-1883 15:11:24	27.01.-1878 18:04:40	01.02.-1873 04:11:49	06.02.-1868 17:49:36
11.01.-1863 08:10:56	16.01.-1858 23:21:27	21.01.-1853 07:42:00	26.01.-1848 12:54:09	30.01.-1843 09:03:27	04.02.-1838 01:01:41
10.01.-1833 22:43:19	15.01.-1828 01:45:53	19.01.-1823 18:47:05	23.01.-1818 23:26:57	29.01.-1813 10:11:37	02.02.-1808 23:55:21
08.01.-1803 04:38:45	13.01.-1798 14:59:15	17.01.-1793 20:19:41	23.01.-1788 12:52:54	26.01.-1783 16:09:55	01.02.-1778 06:25:53

Table B.5Starting NMPs of *Yugā* (385-480) and *Mahā-Yugā* (17-20)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 21 (Yugā 481-504)</i>					
07.01.-1773 05:59:00	12.01.-1768 01:30:39	16.01.-1763 07:02:15	20.01.-1758 15:32:50	26.01.-1753 06:11:57	30.01.-1748 09:29:15
05.01.-1743 09:40:57	09.01.-1738 21:19:38	14.01.-1733 22:49:25	19.01.-1728 22:45:07	23.01.-1723 11:34:59	28.01.-1718 23:01:02
03.01.-1713 13:34:28	09.01.-1708 06:00:06	12.01.-1703 12:34:14	17.01.-1698 20:23:30	22.01.-1693 13:50:11	27.01.-1688 08:38:32
02.01.-1683 04:00:11	06.01.-1678 07:32:20	12.01.-1673 01:05:30	16.01.-1668 04:30:05	20.01.-1663 17:31:13	25.01.-1658 04:42:40
<i>Mahā-Yuga 22 (Yugā 505-528)</i>					
31.12.-1654 11:55:50	05.01.-1648 19:51:21	09.01.-1643 02:43:01	14.01.-1638 18:44:04	18.01.-1633 21:34:23	24.01.-1628 13:29:09
29.12.-1624 10:16:33	03.01.-1618 09:06:49	08.01.-1613 11:31:51	12.01.-1608 22:36:08	17.01.-1603 11:28:49	21.01.-1598 15:30:29
28.12.-1594 16:25:25	02.01.-1588 01:53:11	06.01.-1583 06:21:01	11.01.-1578 03:09:54	15.01.-1573 19:03:15	21.01.-1568 03:52:20
25.12.-1564 19:07:51	31.12.-1559 12:12:17	04.01.-1553 17:27:01	10.01.-1548 03:37:04	13.01.-1543 18:24:08	18.01.-1538 16:13:53
<i>Mahā-Yuga 23 (Yugā 529-552)</i>					
25.12.-1534 08:55:29	29.12.-1529 13:28:16	03.01.-1523 06:55:37	07.01.-1518 09:36:36	13.01.-1513 00:26:32	17.01.-1508 09:25:08
22.12.-1504 19:09:02	28.12.-1499 00:29:06	01.01.-1493 09:10:40	07.01.-1488 00:13:46	10.01.-1483 03:01:34	15.01.-1478 20:06:07 (62)
20.01.-1473 01:01:03	25.01.-1468 11:22:11	29.01.-1463 01:42:57	02.02.-1458 23:43:24	08.02.-1453 03:05:55	12.02.-1448 12:44:44
18.01.-1443 14:20:51	22.01.-1438 17:37:44	28.01.-1433 07:49:09	01.02.-1428 17:01:57	05.02.-1423 21:14:32	10.02.-1418 18:05:17
<i>Mahā-Yuga 24 (Yugā 553-576)</i>					
16.01.-1413 16:50:38	22.01.-1408 07:39:43	25.01.-1403 10:58:34	31.01.-1398 03:07:39	04.02.-1393 09:00:27	09.02.-1388 18:10:36
15.01.-1383 00:16:04	19.01.-1378 12:47:30	25.01.-1373 00:29:57	29.01.-1368 04:52:36	02.02.-1363 21:39:29	07.02.-1358 01:16:55
13.01.-1353 21:18:41	18.01.-1348 15:29:14	22.01.-1343 09:41:11	27.01.-1338 16:40:02	31.01.-1333 23:44:17	06.02.-1328 15:29:43
11.01.-1323 05:54:38	16.01.-1318 18:32:58	21.01.-1313 06:21:46	26.01.-1308 07:19:04	30.01.-1303 07:55:10	03.02.-1298 19:56:25

Table B.6

Starting NMPs of *Yugā* (481-576) and *Mahā-Yugā* (21-24)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 25 (Yugā 577-600)</i>					
10.01.-1293 20:06:55	14.01.-1288 22:48:59	19.01.-1283 14:43:25	23.01.-1278 21:42:21	29.01.-1273 04:55:24	02.02.-1268 22:44:46
07.01.-1263 23:39:54	13.01.-1258 12:52:47	17.01.-1253 16:45:40	23.01.-1248 09:33:26	26.01.-1243 13:55:45	01.02.-1238 01:44:49
07.01.-1233 04:31:15	11.01.-1228 20:06:50	16.01.-1223 05:14:22	20.01.-1218 11:21:54	26.01.-1213 03:27:48	30.01.-1208 06:45:03
05.01.-1203 04:28:45	09.01.-1198 19:54:23	14.01.-1193 17:11:07	19.01.-1188 21:14:17	23.01.-1183 06:44:57	28.01.-1178 20:47:56
<i>Mahā-Yuga 26 (Yugā 601-624)</i>					
03.01.-1173 10:56:54	09.01.-1168 01:21:54	12.01.-1163 10:58:11	17.01.-1158 14:48:55	22.01.-1153 12:31:47	27.01.-1148 03:15:48
02.01.-1143 01:32:11	06.01.-1138 04:10:04	11.01.-1133 21:14:08	16.01.-1128 02:24:47	20.01.-1123 12:21:21	25.01.-1118 03:20:53
31.12.-1114 06:34:13	05.01.-1108 17:51:18	08.01.-1103 22:38:31	14.01.-1098 15:39:16	18.01.-1093 18:53:11	24.01.-1088 08:58:46
29.12.-1084 08:38:34	03.01.-1078 03:30:01	08.01.-1073 09:44:48	12.01.-1068 17:55:34	17.01.-1063 08:57:43	21.01.-1058 12:15:31
<i>Mahā-Yuga 27 (Yugā 625-648)</i>					
28.12.-1054 11:26:32	02.01.-1048 00:10:37	06.01.-1043 00:40:38	11.01.-1038 01:32:40	15.01.-1033 13:50:10	21.01.-1028 01:45:18
25.12.-1024 16:05:09	31.12.-1019 07:49:32	04.01.-1013 15:31:31	09.01.-1008 22:06:18	13.01.-1003 16:55:36	18.01.-998 10:36:17
25.12.-994 06:34:33	29.12.-989 09:38:34	03.01.-983 03:17:43	07.01.-978 07:11:26	12.01.-973 19:23:39	17.01.-968 07:51:32
22.12.-964 13:28:30	27.12.-959 22:34:36	01.01.-953 04:36:33	06.01.-948 21:20:32	09.01.-943 23:55:58	15.01.-938 15:46:37
<i>Mahā-Yuga 28 (Yugā 649-672)</i>					
21.12.-934 12:40:04	26.12.-929 10:49:55	30.12.-924 14:05:53	04.01.-918 00:33:38	09.01.-913 14:08:53	13.01.-908 17:50:19
19.12.-904 18:10:06	24.12.-899 04:23:31	29.12.-894 08:05:42	03.01.-888 05:41:45	06.01.-883 21:02:46	12.01.-878 06:25:31 (62)
16.01.-873 12:29:42	22.01.-868 04:40:53	25.01.-863 08:02:29	30.01.-858 22:49:33	04.02.-853 07:04:07	09.02.-848 12:50:43
14.01.-843 22:27:12	19.01.-838 07:49:32	24.01.-833 21:59:07	29.01.-828 01:22:12	02.02.-823 17:58:13	06.02.-818 23:01:11

Table B.7

Starting NMPs of *Yugā* (577-672) and *Mahā-Yugā* (25-28)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 29 (Yugā 673-696)</i>					
13.01.-813 15:33:28	18.01.-808 13:53:56	22.01.-803 04:11:04	27.01.-798 14:37:07	31.01.-793 19:30:27	06.02.-788 12:25:54
11.01.-783 03:40:00	16.01.-778 13:08:48	21.01.-773 04:45:51	26.01.-768 01:33:37	30.01.-763 06:15:26	03.02.-758 14:59:12
10.01.-753 16:44:58	14.01.-748 19:58:19	19.01.-743 09:58:11	23.01.-738 19:48:11	28.01.-733 23:16:00	02.02.-728 21:12:12
07.01.-723 18:50:25	13.01.-718 10:05:36	17.01.-713 13:19:10	23.01.-708 05:31:22	26.01.-703 11:37:25	31.01.-698 20:29:07
<i>Mahā-Yuga 30 (Yugā 697-720)</i>					
07.01.-693 02:37:30	11.01.-688 14:47:22	16.01.-683 02:50:04	20.01.-678 07:19:49	26.01.-673 00:02:05	30.01.-668 04:02:41
04.01.-663 22:48:47	09.01.-658 18:07:06	14.01.-653 11:27:33	19.01.-648 19:11:00	23.01.-643 02:02:35	28.01.-638 17:53:49
03.01.-633 08:21:03	08.01.-628 20:06:56	12.01.-623 09:08:53	17.01.-618 08:55:07	22.01.-613 10:47:19	26.01.-608 21:55:21
01.01.-603 22:20:52	06.01.-598 00:54:05	11.01.-593 16:39:11	16.01.-588 00:16:07	20.01.-583 06:39:40	25.01.-578 01:40:57
<i>Mahā-Yuga 31 (Yugā 721-744)</i>					
31.12.-574 01:18:11	05.01.-568 15:14:05	08.01.-563 18:42:05	14.01.-558 11:49:08	18.01.-553 16:14:09	24.01.-548 03:48:53
29.12.-544 06:39:29	02.01.-538 21:50:12	08.01.-533 07:26:39	12.01.-528 13:23:46	17.01.-523 05:43:48	21.01.-518 09:05:51
28.12.-514 05:54:21	01.01.-508 22:12:12	05.01.-503 18:46:56	10.01.-498 23:27:04	15.01.-493 08:45:11	20.01.-488 22:58:43
25.12.-484 13:08:53	31.12.-479 02:46:05	04.01.-473 13:28:58	09.01.-468 16:13:46	13.01.-463 15:03:17	18.01.-458 05:01:25
<i>Mahā-Yuga 32 (Yugā 745-768)</i>					
25.12.-454 03:33:19	29.12.-449 06:01:32	02.01.-443 22:55:20	07.01.-438 04:47:53	12.01.-433 13:50:09	17.01.-428 06:03:05
22.12.-424 07:53:15	27.12.-419 20:06:31	01.01.-413 00:17:08	06.01.-408 17:44:11	09.01.-403 20:57:34	15.01.-398 10:49:22
21.12.-394 10:37:54	26.12.-389 04:59:37	30.12.-384 11:53:21	03.01.-378 19:39:03	09.01.-373 11:10:11	13.01.-368 14:15:30
19.12.-364 12:53:39	24.12.-359 02:13:48	29.12.-354 02:13:14	03.01.-348 03:35:39	06.01.-343 15:39:07	12.01.-338 03:50:46

Table B.8

Starting NMPs of *Yugā* (673-768) and *Mahā-Yugā* (29-32)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 33 (Yugā 769-792)</i>					
17.12.-334 18:07:35	23.12.-329 09:11:40	26.12.-324 17:48:12	31.12.-319 23:30:47	05.01.-313 19:10:51	10.01.-308 12:16:01
16.12.-304 08:25:39	20.12.-299 11:22:42	26.12.-294 04:49:25	30.12.-289 09:24:11	03.01.-283 20:45:26	08.01.-278 10:19:20 (62)
13.01.-273 09:37:03	18.01.-268 11:54:22	21.01.-263 22:48:23	27.01.-258 12:01:45	31.01.-253 15:28:32	06.02.-248 08:42:52
11.01.-243 01:22:35	16.01.-238 07:21:01	21.01.-233 02:54:00	25.01.-228 19:44:07	30.01.-223 04:07:36	03.02.-218 10:13:12
<i>Mahā-Yuga 34 (Yugā 793-816)</i>					
10.01.-213 12:42:53	14.01.-208 17:10:07	19.01.-203 04:38:16	23.01.-198 17:46:11	28.01.-193 17:20:57	02.02.-188 19:16:55
07.01.-183 14:11:42	13.01.-178 06:41:10	17.01.-173 09:58:24	23.01.-168 00:48:59	26.01.-163 09:14:52	31.01.-158 14:47:54
07.01.-153 00:18:25	11.01.-148 09:35:01	15.01.-143 23:51:33	20.01.-138 03:27:33	25.01.-133 19:54:52	30.01.-128 01:19:23
04.01.-123 16:48:44	09.01.-118 15:58:24	14.01.-113 05:45:01	19.01.-108 16:33:50	22.01.-103 21:33:18	28.01.-98 14:18:27
<i>Mahā-Yuga 35 (Yugā 817-840)</i>					
03.01.-93 05:44:08	08.01.-88 14:20:30	12.01.-83 07:03:37	17.01.-78 02:53:27	22.01.-73 08:31:23	26.01.-68 16:43:57
01.01.-63 18:26:45	05.01.-58 21:42:42	11.01.-53 11:24:01	15.01.-48 21:57:20	20.01.-43 00:38:01	24.01.-38 23:36:32
30.12.-34 20:09:50	05.01.-28 11:56:45	08.01.-23 14:52:53	14.01.-18 07:15:29	18.01.-13 13:28:44	23.01.-8 22:07:25
29.12.-4 04:14:23	02.01.2 16:13:39	08.01.7 04:31:39	12.01.12 08:59:10	17.01.17 01:48:09	21.01.22 05:52:15
<i>Mahā-Yuga 36 (Yugā 841-864)</i>					
27.12.26 23:55:28	01.01.32 19:48:56	05.01.37 12:48:29	10.01.42 20:47:15	15.01.47 03:44:08	20.01.52 19:31:07
25.12.56 10:07:02	30.12.61 21:04:51	04.01.67 11:03:47	09.01.72 10:01:39	13.01.77 12:37:09	17.01.82 23:22:34
24.12.86 23:43:33	29.12.91 02:21:50	02.01.97 17:45:56	07.01.102 02:06:38	12.01.107 07:41:49	17.01.112 03:43:56
22.12.116 02:14:12	27.12.121 16:51:42	31.12.126 19:53:28	06.01.132 13:16:21	09.01.137 17:45:47	15.01.142 05:04:44

Table B.9

Starting NMPs of *Yugā* (769-864) and *Mahā-Yugā* (33-36)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 37 (Yugā 865-888)</i>					
21.12.146 08:02:20	25.12.151 22:55:08	30.12.156 08:58:59	03.01.162 14:37:38	09.01.167 07:19:48	13.01.172 10:30:05
19.12.176 06:55:02	23.12.181 23:32:58	28.12.186 19:55:36	03.01.192 00:49:46	06.01.197 10:06:19	12.01.202 00:25:54
17.12.206 14:37:32	23.12.211 03:36:54	26.12.216 15:01:58	31.12.221 17:10:45	05.01.227 16:32:14	10.01.232 06:14:44
16.12.236 04:40:57	20.12.241 07:16:12	25.12.246 23:47:10	30.12.251 06:22:50	03.01.257 14:37:15	08.01.262 07:45:26
<i>Mahā-Yuga 38 (Yugā 889-912)</i>					
14.12.266 08:31:52	19.12.271 21:30:13	23.12.276 01:11:00	28.12.281 18:53:13	01.01.287 22:14:16	07.01.292 11:44:13
12.12.296 11:49:33	17.12.301 05:42:38	22.12.306 13:14:40	26.12.311 20:28:13	31.12.316 12:31:55	04.01.322 15:17:09 (62)
10.01.327 07:45:19	14.01.332 14:02:47	18.01.337 22:34:03	23.01.342 15:11:29	28.01.347 11:03:37	02.02.352 16:38:30
07.01.357 09:26:58	13.01.362 02:23:02	17.01.367 06:23:51	22.01.372 19:18:29	26.01.377 06:25:20	31.01.382 08:35:15
<i>Mahā-Yuga 39 (Yugā 913-936)</i>					
06.01.387 21:16:46	11.01.392 04:19:29	15.01.397 20:03:50	19.01.402 23:26:11	25.01.407 15:00:13	29.01.412 22:14:45
04.01.417 10:25:42	09.01.422 13:10:55	13.01.427 23:57:39	19.01.432 13:12:42	22.01.437 16:59:58	28.01.442 09:56:36
03.01.447 02:49:28	08.01.452 08:03:18	12.01.457 04:27:19	16.01.462 20:40:08	22.01.467 05:37:03	26.01.472 11:32:17
01.01.477 13:46:19	05.01.482 18:22:24	11.01.487 05:31:54	15.01.492 19:17:46	19.01.497 18:15:39	24.01.502 21:01:20
<i>Mahā-Yuga 40 (Yugā 937-960)</i>					
30.12.506 15:03:44	05.01.512 07:58:11	08.01.517 11:00:01	14.01.522 02:01:28	18.01.527 10:31:43	23.01.532 15:56:57
29.12.536 01:20:52	02.01.542 10:38:33	08.01.547 01:02:34	12.01.552 04:36:52	16.01.557 21:12:46	21.01.562 02:34:27
27.12.566 17:38:03	01.01.572 17:02:49	05.01.577 06:49:09	10.01.582 17:37:44	14.01.587 22:52:14	20.01.592 15:27:58
25.12.596 07:02:34	30.12.601 15:00:20	04.01.607 08:24:41	09.01.612 03:44:51	13.01.617 09:46:49	17.01.622 17:56:33

Table B.10

Starting NMPs of *Yugā* (865-960) and *Mahā-Yugā* (37-40)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 41 (Yugā 961-984)</i>					
24.12.626 19:21:52	28.12.631 22:51:16	02.01.637 12:08:55	06.01.642 23:23:33	12.01.647 01:23:24	17.01.652 01:09:13
21.12.656 20:51:41	27.12.661 13:10:03	31.12.666 15:47:36	06.01.672 08:19:59	09.01.677 14:41:42	14.01.682 23:05:05
21.12.686 05:16:32	25.12.691 17:06:28	30.12.696 05:44:44	03.01.702 09:57:54	09.01.707 03:05:21	13.01.712 06:58:06
19.12.716 00:49:31	23.12.721 20:47:26	28.12.726 13:50:36	02.01.732 21:49:51	06.01.737 04:56:44	11.01.742 20:42:44
<i>Mahā-Yuga 42 (Yugā 985-1008)</i>					
17.12.746 11:22:32	22.12.751 21:50:35	26.12.756 12:16:37	31.12.761 10:58:10	05.01.767 13:43:55	10.01.772 00:35:46
16.12.776 00:36:31	20.12.781 03:33:05	25.12.786 18:30:11	30.12.791 03:29:56	03.01.797 08:28:59	08.01.802 05:08:01
14.12.806 02:55:24	19.12.811 18:02:13	22.12.816 20:47:59	28.12.821 14:15:52	01.01.827 18:58:26	07.01.832 05:56:51
12.12.836 09:08:00	16.12.841 23:41:58	22.12.846 10:12:08	26.12.851 15:27:13	31.12.856 08:34:52	04.01.862 11:28:37
<i>Mahā-Yuga 43 (Yugā 1009-1032)</i>					
11.12.866 07:53:46	16.12.871 00:26:12	19.12.876 20:53:40	25.12.881 01:49:38	29.12.886 11:06:21	04.01.892 01:37:41
08.12.896 15:44:44	14.12.901 04:28:20	18.12.906 16:02:30	23.12.911 18:07:58	27.12.916 17:28:20	01.01.922 07:21:26 (62)
06.01.927 18:05:40	10.01.932 23:28:06	15.01.937 16:01:58	19.01.942 19:44:03	25.01.947 09:49:35	29.01.952 19:18:40
04.01.957 04:14:10	09.01.962 10:14:15	13.01.967 18:32:37	19.01.972 09:35:07	22.01.977 12:49:59	28.01.982 05:15:30
<i>Mahā-Yuga 44 (Yugā 1033-1056)</i>					
03.01.987 00:00:04	08.01.992 01:46:03	12.01.997 01:44:09	16.01.1002 14:42:58	22.01.1007 02:24:27	26.01.1012 06:44:01
01.01.1017 08:44:56	05.01.1022 15:12:43	10.01.1027 23:27:19	15.01.1032 16:35:43	19.01.1037 12:00:02	24.01.1042 18:09:36
30.12.1046 10:16:45	05.01.1052 03:34:59	08.01.1057 07:20:09	13.01.1062 20:26:31	18.01.1067 07:34:07	23.01.1072 09:42:21
28.12.1076 22:10:32	02.01.1082 05:19:40	07.01.1087 21:08:21	12.01.1092 00:26:53	16.01.1097 16:12:37	20.01.1102 23:15:56

Table B.11

Starting NMPs of *Yugā* (961-1056) and *Mahā-Yugā* (41-44)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 45 (Yugā 1057-1080)</i>					
27.12.1106 11:19:00	01.01.1112 13:59:06	05.01.1117 01:01:29	10.01.1122 14:02:29	14.01.1127 18:11:45	20.01.1132 10:57:13
25.12.1136 03:54:11	30.12.1141 08:42:41	04.01.1147 05:27:22	08.01.1152 21:31:51	13.01.1157 06:29:11	17.01.1162 12:39:33
24.12.1166 14:26:54	28.12.1171 19:19:32	02.01.1177 06:07:57	06.01.1182 20:24:24	11.01.1187 18:55:55	16.01.1192 22:08:16
21.12.1196 15:35:07	27.12.1201 08:52:07	31.12.1206 11:40:17	06.01.1212 02:49:58	09.01.1217 11:25:16	14.01.1222 16:42:04
<i>Mahā-Yuga 46 (Yugā 1081-1104)</i>					
21.12.1226 02:02:52	25.12.1231 11:17:43	30.12.1236 01:54:42	03.01.1242 05:14:50	08.01.1247 22:11:12	13.01.1252 03:14:55
18.12.1256 18:23:39	23.12.1261 17:33:00	28.12.1266 07:37:34	02.01.1272 18:14:35	05.01.1277 23:41:35	11.01.1282 16:17:28
17.12.1286 07:48:55	22.12.1291 15:33:10	26.12.1296 09:02:39	31.12.1301 04:27:08	05.01.1307 10:18:57	09.01.1312 18:48:43
15.12.1316 19:46:30	19.12.1321 23:35:29	25.12.1326 12:31:10	30.12.1331 00:11:59	03.01.1337 01:51:10	08.01.1342 01:53:16
<i>Mahā-Yuga 47 (Yugā 1105-1128)</i>					
13.12.1346 21:10:09	19.12.1351 13:45:53	22.12.1356 16:13:13	28.12.1361 08:47:29	01.01.1367 15:21:08	06.01.1372 23:29:07
12.12.1376 05:48:50	16.12.1381 17:25:17	22.12.1386 06:22:22	26.12.1391 10:13:44	31.12.1396 03:43:11	04.01.1402 07:20:02
11.12.1406 01:22:47	15.12.1411 21:01:44	19.12.1416 14:19:21	24.12.1421 22:11:17	29.12.1426 05:21:03	03.01.1432 21:15:32
08.12.1436 11:46:38	13.12.1441 22:13:43	18.12.1446 12:30:59	23.12.1451 11:26:45	27.12.1456 13:53:30	01.01.1462 01:08:46
<i>Mahā-Yuga 48 (Yugā 1129-1152)</i>					
08.12.1466 00:43:56	12.12.1471 04:02:04	16.12.1476 18:37:46	21.12.1481 03:56:34	26.12.1486 08:44:39	31.12.1491 05:26:22
05.12.1496 03:04:06	10.12.1501 18:18:23	14.12.1506 21:04:02	20.12.1511 14:22:19	23.12.1516 19:23:25	29.12.1521 06:04:11 (62)
02.01.1527 20:30:37	07.01.1532 18:56:30	11.01.1537 22:09:55	16.01.1542 08:26:13	21.01.1547 22:15:41	26.01.1552 01:34:34
01.01.1557 02:48:33	05.01.1562 11:28:27	10.01.1567 16:42:06	15.01.1572 13:08:26	19.01.1577 05:17:01	24.01.1582 14:25:41

Table B.12

Starting NMPs of *Yugā* (1057-1152) and *Mahā-Yugā* (45-48)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 49 (Yugā 1153-1176)</i>					
09.01.1587 05:08:03	14.01.1592 22:15:12	18.01.1597 03:09:50	23.01.1602 14:03:05	28.01.1607 03:58:44	02.02.1612 02:51:44
07.01.1617 18:10:31	11.01.1622 23:41:11	17.01.1627 16:20:23	21.01.1632 19:50:29	26.01.1637 10:20:05	30.01.1642 19:24:41
06.01.1647 04:32:34	11.01.1652 10:08:54	14.01.1657 18:55:03	20.01.1662 09:37:08	24.01.1667 13:10:24	30.01.1672 05:33:38
04.01.1677 00:11:10	09.01.1682 01:51:22	14.01.1687 01:48:13	18.01.1692 14:58:09	23.01.1697 02:23:26	28.01.1702 07:07:35
<i>Mahā-Yuga 50 (Yugā 1177-1200)</i>					
04.01.1707 08:41:32	08.01.1712 15:21:56	12.01.1717 23:25:26	17.01.1722 16:50:26	22.01.1727 12:03:21	27.01.1732 18:21:49
01.01.1737 10:05:31	07.01.1742 03:43:16	11.01.1747 07:14:06	16.01.1752 20:32:59	20.01.1757 07:40:56	25.01.1762 09:47:57
31.12.1766 22:09:05	05.01.1772 05:16:47	09.01.1777 21:17:42	14.01.1782 00:17:55	19.01.1787 16:29:06	23.01.1792 23:09:27
29.12.1796 11:32:48	04.01.1802 13:43:33	09.01.1807 01:13:44	14.01.1812 13:56:59	17.01.1817 18:17:51	23.01.1822 11:07:31
<i>Mahā-Yuga 51 (Yugā 1201-1224)</i>					
29.12.1826 03:53:01	03.01.1832 08:47:00	07.01.1837 05:16:45	11.01.1842 21:45:06	17.01.1847 06:15:22	21.01.1852 12:56:45
27.12.1856 14:15:23	31.12.1861 19:24:26	06.01.1867 06:00:01	10.01.1872 20:28:14	14.01.1877 18:58:06	19.01.1882 22:05:27
25.12.1886 15:24:49	31.12.1891 08:49:53	03.01.1897 11:33:22	10.01.1902 02:44:31	14.01.1907 11:26:53	19.01.1912 16:39:35
25.12.1916 02:00:52	29.12.1921 11:09:05	04.01.1927 01:57:47	08.01.1932 04:58:35	12.01.1937 22:16:57	17.01.1942 03:01:35
<i>Mahā-Yuga 52 (Yugā 1225-1248)</i>					
23.12.1946 18:36:00	28.12.1951 17:13:23	01.01.1957 07:43:34	06.01.1962 18:05:16	10.01.1967 23:35:54	16.01.1972 16:22:23
21.12.1976 07:37:47	26.12.1981 15:40:01	31.12.1986 08:39:51	05.01.1992 04:39:35	09.01.1997 09:55:45	13.01.2002 18:58:36
20.12.2006 19:30:48	24.12.2011 23:36:23	29.12.2016 12:23:11	03.01.2022 00:03:27	08.01.2027 01:54:09	13.01.2032 01:36:25
17.12.2036 21:04:01	23.12.2041 13:35:49	27.12.2046 16:08:13	02.01.2052 08:34:44	05.01.2057 15:18:37	10.01.2062 23:21:47

Table B.13

Starting NMPs of *Yugā* (1153-1248) and *Mahā-Yugā* (49-52)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 53 (Yugā 1249-1272)</i>					
17.12.2066 05:47:01	21.12.2071 17:16:19	26.12.2076 06:22:41	30.12.2081 09:57:49	05.01.2087 03:40:28	09.01.2092 07:06:16
15.12.2096 01:35:08	20.12.2101 20:43:48	25.12.2106 14:22:31	30.12.2111 22:04:07	03.01.2117 05:10:17	08.01.2122 21:17:26 (62)
13.01.2127 00:05:36	18.01.2132 16:30:34	21.01.2137 22:57:57	27.01.2142 07:22:46	01.02.2147 00:12:09	05.02.2152 20:01:10
11.01.2157 13:49:46	15.01.2162 18:10:40	21.01.2167 11:07:24	25.01.2172 15:15:36	30.01.2177 04:05:43	03.02.2182 15:24:09
<i>Mahā-Yuga 54 (Yugā 1273-1296)</i>					
09.01.2187 21:48:42	15.01.2192 05:58:23	18.01.2197 12:58:27	25.01.2202 04:46:33	29.01.2207 08:13:20	03.02.2212 23:46:40
08.01.2217 20:16:16	13.01.2222 18:56:43	18.01.2227 21:48:11	23.01.2232 08:33:29	27.01.2237 21:52:46	01.02.2242 01:42:54
08.01.2247 02:34:00	12.01.2252 11:18:25	16.01.2257 16:33:01	21.01.2262 12:59:16	26.01.2267 05:15:01	31.01.2272 14:13:04
05.01.2277 04:44:44	10.01.2282 22:09:53	15.01.2287 02:47:46	20.01.2292 13:59:49	24.01.2297 03:45:38	30.01.2302 02:50:29
<i>Mahā-Yuga 55 (Yugā 1297-1320)</i>					
05.01.2307 17:55:15	09.01.2312 23:25:21	14.01.2317 16:17:32	18.01.2322 19:23:07	24.01.2327 10:26:47	28.01.2332 18:57:11
03.01.2337 04:42:56	08.01.2342 09:35:39	12.01.2347 18:57:00	18.01.2352 09:19:02	21.01.2357 12:57:28	27.01.2362 05:35:13
01.01.2367 23:46:41	07.01.2372 01:54:56	11.01.2377 01:13:13	15.01.2382 15:05:53	21.01.2387 01:51:13	25.01.2392 07:10:40
31.12.2396 08:22:13	04.01.2402 15:07:36	09.01.2407 23:14:51	14.01.2412 16:28:56	18.01.2417 12:01:25	23.01.2422 17:55:07
<i>Mahā-Yuga 56 (Yugā 1321-1344)</i>					
29.12.2426 09:44:59	04.01.2432 03:28:13	07.01.2437 06:51:38	12.01.2442 20:19:05	17.01.2447 07:22:20	22.01.2452 09:38:27
27.12.2456 21:51:54	01.01.2462 04:56:17	06.01.2467 21:07:37	10.01.2472 23:45:28	15.01.2477 16:22:58	19.01.2482 22:37:21
26.12.2486 11:40:35	31.12.2491 13:06:38	04.01.2497 01:07:50	10.01.2502 13:34:12	14.01.2507 17:53:42	20.01.2512 11:00:33
25.12.2516 03:18:09	30.12.2521 08:51:13	04.01.2527 04:31:03	08.01.2532 21:48:56	13.01.2537 05:33:13	17.01.2542 12:51:03

Table B.14

Starting NMPs of *Yugā* (1249-1344) and *Mahā-Yugā* (53-56)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 57 (Yugā 1345-1368)</i>					
24.12.2546 13:50:49	28.12.2551 19:04:13	02.01.2557 05:47:01	06.01.2562 19:53:42	11.01.2567 18:54:53	16.01.2572 21:21:24
21.12.2576 15:07:31	27.12.2581 08:22:36	31.12.2586 11:11:57	06.01.2592 02:20:26	09.01.2597 11:01:37	15.01.2602 16:24:21
22.12.2606 01:39:14	26.12.2611 10:47:36	31.12.2616 01:38:08	04.01.2622 04:27:22	09.01.2627 21:57:41	14.01.2632 02:27:55
19.12.2636 18:40:14	24.12.2641 16:36:15	29.12.2646 07:33:44	03.01.2652 17:38:53	06.01.2657 23:07:40	12.01.2662 16:06:51
<i>Mahā-Yuga 58 (Yugā 1369-1392)</i>					
18.12.2666 06:57:34	23.12.2671 15:46:16	27.12.2676 07:48:52	01.01.2682 04:43:13	06.01.2687 09:08:50	10.01.2692 18:47:16
16.12.2696 19:04:17	21.12.2701 23:11:30	27.12.2706 12:12:50	31.12.2711 23:18:40	05.01.2717 01:54:09	10.01.2722 00:40:24 (62)
14.01.2727 15:02:11	20.01.2732 01:21:18	23.01.2737 06:59:46	28.01.2742 23:29:06	02.02.2747 03:07:51	07.02.2752 17:33:59
12.01.2757 16:00:53	17.01.2762 11:55:15	22.01.2767 17:22:26	27.01.2772 02:07:20	31.01.2777 16:53:57	04.02.2782 20:15:14
<i>Mahā-Yuga 59 (Yugā 1393-1416)</i>					
11.01.2787 20:02:57	16.01.2792 06:59:05	20.01.2797 09:26:58	25.01.2802 08:44:42	29.01.2807 22:22:13	04.02.2812 09:34:52
08.01.2817 23:20:06	14.01.2822 16:08:15	18.01.2827 22:10:50	24.01.2832 07:04:46	27.01.2837 23:31:49	01.02.2842 19:42:55
08.01.2847 13:14:24	12.01.2852 17:30:31	17.01.2857 10:47:11	21.01.2862 14:21:17	27.01.2867 03:56:48	31.01.2872 14:30:02
05.01.2877 21:45:58	11.01.2882 05:02:41	15.01.2887 12:38:04	21.01.2892 04:10:50	24.01.2897 07:32:07	30.01.2902 23:33:47
<i>Mahā-Yuga 60 (Yugā 1417-1440)</i>					
05.01.2907 19:21:58	10.01.2912 18:51:20	14.01.2917 20:44:47	19.01.2922 08:24:59	24.01.2927 20:57:05	29.01.2932 01:21:50
04.01.2937 02:02:54	08.01.2942 10:37:14	13.01.2947 16:12:42	18.01.2952 12:06:31	22.01.2957 05:00:42	27.01.2962 13:15:14
02.01.2967 04:04:21	07.01.2972 21:35:51	11.01.2977 02:02:18	16.01.2982 13:31:35	21.01.2987 02:58:32	26.01.2992 02:27:40
31.12.2996 17:15:09	05.01.3002 22:43:30	11.01.3007 15:45:55	15.01.3012 18:26:26	20.01.3017 10:03:04	24.01.3022 17:58:37

Table B.15

Starting NMPs of *Yugā* (1345-1440) and *Mahā-Yugā* (57-60)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 61 (Yugā 1441-1464)</i>					
31.12.3026 04:37:15	05.01.3032 08:35:42	08.01.3037 18:31:10	14.01.3042 08:34:50	18.01.3047 12:06:42	24.01.3052 05:10:56
28.12.3056 22:42:00	03.01.3062 01:50:39	07.01.3067 23:58:46	12.01.3072 14:55:29	17.01.3077 00:44:34	21.01.3082 06:40:07
28.12.3086 07:45:11	01.01.3092 14:18:27	05.01.3097 22:55:00	11.01.3102 15:22:11	16.01.3107 11:48:41	21.01.3112 16:41:07
26.12.3116 09:10:24	01.01.3122 02:41:34	05.01.3127 06:06:51	10.01.3132 19:44:05	14.01.3137 06:27:41	19.01.3142 09:13:40
<i>Mahā-Yuga 62 (Yugā 1465-1488)</i>					
25.12.3146 21:05:47	30.12.3151 04:17:33	03.01.3157 20:25:07	07.01.3162 22:51:37	13.01.3167 15:47:03	17.01.3172 21:38:00
23.12.3176 11:34:20	28.12.3181 12:06:41	02.01.3187 00:40:28	07.01.3192 12:47:01	10.01.3197 17:00:49	16.01.3202 10:26:30
22.12.3206 02:09:14	27.12.3211 08:49:48	31.12.3216 03:13:52	04.01.3222 21:38:45	10.01.3227 04:24:47	14.01.3232 12:16:21
20.12.3236 13:13:37	24.12.3241 18:10:18	30.12.3246 05:29:59	03.01.3252 18:38:45	07.01.3257 18:46:04	12.01.3262 19:58:08
<i>Mahā-Yuga 63 (Yugā 1489-1512)</i>					
18.12.3266 14:42:25	24.12.3271 07:27:03	27.12.3276 10:28:21	02.01.3282 01:40:03	06.01.3287 10:00:46	11.01.3292 15:59:39
17.12.3296 00:46:53	22.12.3301 10:14:48	28.12.3306 00:42:39	01.01.3312 03:38:01	05.01.3317 21:07:14	10.01.3322 01:28:39 (62)
15.01.3327 13:09:30	20.01.3332 02:21:11	24.01.3337 02:10:10	29.01.3342 04:02:37	02.02.3347 15:27:36	08.02.3352 04:25:14
12.01.3357 17:49:23	18.01.3362 09:38:55	22.01.3367 17:19:06	27.01.3372 23:53:26	31.01.3377 18:53:42	05.02.3382 12:28:53
<i>Mahā-Yuga 64 (Yugā 1513-1536)</i>					
12.01.3387 08:04:31	16.01.3392 11:30:36	21.01.3397 04:47:40	26.01.3402 09:06:11	31.01.3407 21:04:58	05.02.3412 09:42:55
10.01.3417 14:44:00	16.01.3422 00:02:41	20.01.3427 06:14:48	25.01.3432 22:34:44	29.01.3437 01:55:04	03.02.3442 17:06:55
09.01.3447 14:34:49	14.01.3452 11:40:19	18.01.3457 15:49:49	23.01.3462 01:39:55	28.01.3467 15:35:41	01.02.3472 19:24:34
07.01.3477 19:20:46	12.01.3482 05:46:47	17.01.3487 08:58:36	22.01.3492 07:19:03	25.01.3497 21:53:54	01.02.3502 08:07:51

Table B.16

Starting NMPs of *Yugā* (1441-1536) and *Mahā-Yugā* (61-64)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 65 (Yugā 1537-1560)</i>					
06.01.3507 22:17:46	12.01.3512 15:17:13	15.01.3517 20:58:07	21.01.3522 06:25:10	25.01.3527 22:14:18	30.01.3532 19:06:34
05.01.3537 12:12:01	09.01.3542 16:25:41	15.01.3547 09:56:10	19.01.3552 12:57:23	24.01.3557 03:17:27	28.01.3562 13:03:35
03.01.3567 21:26:16	09.01.3572 03:40:53	12.01.3577 11:48:54	18.01.3582 03:08:16	22.01.3587 06:11:38	27.01.3592 22:52:54
01.01.3597 17:45:51	06.01.3602 18:37:42	11.01.3607 19:04:14	16.01.3612 07:55:43	20.01.3617 19:29:43	25.01.3622 00:23:28
<i>Mahā-Yuga 66 (Yugā 1561-1584)</i>					
01.01.3627 01:15:25	05.01.3632 09:16:15	09.01.3637 15:45:11	14.01.3642 10:28:23	19.01.3647 04:35:24	24.01.3652 11:33:29
29.12.3656 03:09:03	03.01.3662 20:32:33	08.01.3667 00:50:22	13.01.3672 12:45:11	17.01.3677 01:33:24	22.01.3682 01:52:05
28.12.3686 16:05:50	01.01.3692 21:44:57	06.01.3697 14:42:23	11.01.3702 17:09:00	17.01.3707 09:09:54	21.01.3712 16:32:32
27.12.3716 04:17:21	01.01.3722 07:13:39	05.01.3727 17:44:31	11.01.3732 07:26:41	14.01.3737 10:49:11	20.01.3742 04:17:59
<i>Mahā-Yuga 67 (Yugā 1585-1608)</i>					
25.12.3746 21:04:21	31.12.3751 01:38:41	03.01.3757 22:16:19	08.01.3762 14:29:23	13.01.3767 23:14:52	18.01.3772 05:41:16
24.12.3776 06:58:05	28.12.3781 12:54:07	02.01.3787 22:30:10	07.01.3792 13:36:19	11.01.3797 11:29:50	17.01.3802 14:51:04
23.12.3806 08:28:10	29.12.3811 01:29:38	01.01.3817 04:57:01	06.01.3822 18:54:13	11.01.3827 04:54:59	16.01.3832 08:41:29
21.12.3836 19:47:31	26.12.3841 03:30:44	31.12.3846 19:07:15	04.01.3852 21:40:53	09.01.3857 14:41:29	13.01.3862 20:10:59
<i>Mahā-Yuga 68 (Yugā 1609-1632)</i>					
20.12.3866 11:12:29	25.12.3871 10:41:46	28.12.3876 23:56:56	03.01.3882 11:28:55	07.01.3887 15:47:30	13.01.3892 09:19:09
18.12.3896 00:31:17	24.12.3901 08:34:54	29.12.3906 01:29:23	02.01.3912 21:10:59	07.01.3917 02:51:25	11.01.3922 11:17:29 (62)
17.01.3927 02:28:35	21.01.3932 05:22:29	25.01.3937 22:22:21	30.01.3942 03:37:27	04.02.3947 13:52:10	09.02.3952 04:36:30
14.01.3957 07:36:14	19.01.3962 18:38:57	23.01.3967 23:44:32	29.01.3972 16:32:26	01.02.3977 20:06:42	07.02.3982 10:16:07

Table B.17

Starting NMPs of *Yugā* (1537-1632) and *Mahā-Yugā* (65-68)

<i>Yugā of a Mahā-Yuga</i>					
1,7,13,19	2,8,14,20	3,9,15,21	4,10,16,22	5,11,17,23	6,12,18,24
<i>Mahā-Yuga 69 (Yugā 1633-1656)</i>					
13.01.3987 09:25:45	18.01.3992 04:20:59	22.01.3997 10:31:18	26.01.4002 18:50:37	01.02.4007 09:47:42	05.02.4012 13:19:18
11.01.4017 12:19:05	16.01.4022 00:37:24	21.01.4027 01:32:41	26.01.4032 02:06:50	29.01.4037 14:44:17	04.02.4042 02:32:33
09.01.4047 16:24:10	15.01.4052 08:34:17	18.01.4057 15:39:45	23.01.4062 23:02:28	28.01.4067 17:06:40	02.02.4072 11:39:49
08.01.4077 06:42:25	12.01.4082 10:03:21	18.01.4087 03:39:27	22.01.4092 07:17:44	26.01.4097 20:11:19	01.02.4102 07:49:18
<i>Mahā-Yuga 70 (Yugā 1657-1680)</i>					
07.01.4107 14:08:50	12.01.4112 22:21:21	16.01.4117 05:03:18	21.01.4122 21:15:19	26.01.4127 00:07:24	31.01.4132 16:11:42
05.01.4137 12:29:54	10.01.4142 11:16:13	15.01.4147 13:44:52	20.01.4152 00:53:02	24.01.4157 13:49:56	28.01.4162 17:58:44
04.01.4167 18:26:33	09.01.4172 03:55:11	13.01.4177 08:24:27	18.01.4182 05:10:11	22.01.4187 21:17:19	28.01.4192 06:01:17
01.01.4197 21:02:23	08.01.4202 14:01:11	12.01.4207 19:19:26	18.01.4212 05:31:04	21.01.4217 20:17:29	26.01.4222 18:22:23
<i>Mahā-Yuga 71 (Yugā 1681-1704)</i>					
02.01.4227 10:39:15	06.01.4232 15:08:59	11.01.4237 08:34:58	15.01.4242 11:16:13	21.01.4247 02:12:53	25.01.4252 11:09:45
30.12.4256 20:53:53	05.01.4262 01:57:10	09.01.4267 10:43:17	15.01.4272 01:42:22	18.01.4277 04:29:49	23.01.4282 21:46:05
29.12.4286 15:41:11	03.01.4292 18:17:07	07.01.4297 16:58:06	13.01.4302 07:13:11	18.01.4307 17:42:03	22.01.4312 22:59:58
29.12.4316 00:23:33	02.01.4322 07:21:37	07.01.4327 15:16:17	12.01.4332 08:13:27	16.01.4337 04:05:31	21.01.4342 09:21:01
<i>Mahā-Yuga 72 (Yugā 1705-1722)</i>					
27.12.4346 02:07:29	01.01.4352 19:10:36	04.01.4357 23:14:03	10.01.4362 11:50:18	14.01.4367 23:30:11	20.01.4372 01:13:01
25.12.4376 14:23:49	29.12.4381 20:42:00	04.01.4387 13:07:05	08.01.4392 15:37:08	13.01.4397 07:53:37	17.01.4402 14:38:45
24.12.4406 03:46:01	29.12.4411 05:26:39	01.01.4417 16:44:28	07.01.4422 05:48:26	11.01.4427 09:15:26	17.01.4432 02:55:01
21.12.4436 (Starting New Moon Point of the 8 th Manvantara) 19:01:57					

Table B.18

Starting NMPs of *Yugā* (1633-1722) and *Mahā-Yugā* (69-72)

Appendix C

Vedic Calendar & Festival Dates

2017-2028 CE

Given first is the table of four major timepoints of a Year (Winter Solstice: WS, Vernal Equinox: VE, Summer Solstice: SS and Autumnal Equinox: AE) for the *Samvatsara*/Years of 2017-2028:

Year	WS	VE	SS	AE
2017	21.12.2016 16:14	20.03.2017 15:59	21.06.2017 09:54	23.09.2017 01:32
2018	21.12.2017 21:58	20.03.2018 21:45	21.06.2018 15:37	23.09.2018 07:24
2019	22.12.2018 03:53	21.03.2019 03:28	21.06.2019 21:24	23.09.2019 13:20
2020	22.12.2019 09:49	20.03.2020 09:20	21.06.2020 03:13	22.09.2020 19:00
2021	21.12.2020 15:32	20.03.2021 15:07	21.06.2021 09:02	23.09.2021 00:51
2022	21.12.2021 21:29	20.03.2022 21:03	21.06.2022 14:44	23.09.2022 06:34
2023	22.12.2022 03:18	21.03.2023 02:54	21.06.2023 20:28	23.09.2023 12:20
2024	22.12.2023 08:57	20.03.2024 08:36	21.06.2024 02:21	22.09.2024 18:13
2025	21.12.2024 14:50	20.03.2025 14:31	21.06.2025 08:12	22.09.2025 23:49
2026	21.12.2025 20:33	20.03.2026 20:16	21.06.2026 13:54	23.09.2026 05:35
2027	22.12.2026 02:20	21.03.2027 01:54	21.06.2027 19:40	23.09.2027 11:31
2028	22.12.2027 08:12	20.03.2028 07:47	21.06.2028 01:32	22.09.2028 17:15

Table C.1
Solstices and Equinoxes (IST)

In the following calendar tables, the Vedic calendars of Years 2017-2028 are given. Stated against the years are the *Mahā-Yuga* No. with their *Yuga* No. and the *Samvatsara*/Year (1.5) of that *Yuga*. For example, “2017 (MY52, Y15, 1)” means the Year 2017 belongs to 52nd *Mahā-Yuga*, its 15th *Yuga* and is the 1st *Samvatsara*/Year of the 15th *Yuga*. Since India is a big country, all references are from Ujjain that lies about its middle. The actual first day of these calendars would vary from country to country, a well-known central location within a country, or the capital, may be adopted as a reference for that country. The Assyrian and Egyptian months may also be referenced from these calendars as stated previously. Their first day would be a New Moon Day instead of the day after and their rule for marking the New Moon Day is the visibility of faintest Moon crescent at Sunset that day.

No.	Month	First Day	F.M. Day	First Day	F.M. Day
Ujjain		2017 (MY52, Y15, 1)		2018 (MY52, Y15, 2)	
1	<i>Māgha</i>	30.12.2016	13.01.2017	19.12.2017	02.01.2018
2	<i>Phālguna</i>	29.01.2017	11.02.2017	18.01.2018	01.02.2018
3	<i>Caitra</i>	28.02.2017	13.03.2017	17.02.2018	02.03.2018
4	<i>Vaisākha</i>	29.03.2017	11.04.2017	19.03.2018	01.04.2018
5	<i>Jyeṣṭha</i>	28.04.2017	11.05.2017	17.04.2018	30.04.2018
6a	<i>Āṣāḍha (Ādhika)</i>	-	-	-	-
6b	<i>Āṣāḍha</i>	27.05.2017	10.06.2017	17.05.2018	30.05.2018
7	<i>Śrāvāṇa</i>	25.06.2017	09.07.2017	15.06.2018	28.06.2018
8	<i>Bhādrapada</i>	25.07.2017	08.08.2017	14.07.2018	28.07.2018
9	<i>Aśvin</i>	23.08.2017	07.09.2017	13.08.2018	27.08.2018
10	<i>Kārtika</i>	21.09.2017	06.10.2017	11.09.2018	25.09.2018
11	<i>Mārgaśīrṣa</i>	21.10.2017	04.11.2017	10.10.2018	25.10.2018
12a	<i>Pauṣa</i>	20.11.2017	04.12.2017	09.11.2018	23.11.2018
12b	<i>Pauṣa (Ādhika)</i>	-	-	-	-
Ujjain		2019 (MY52, Y15, 3)		2020 (MY52, Y15, 4)	
1	<i>Māgha</i>	09.12.2018	23.12.2018	27.12.2019	11.01.2020
2	<i>Phālguna</i>	07.01.2019	21.01.2019	26.01.2020	10.02.2020
3	<i>Caitra</i>	06.02.2019	20.02.2019	25.02.2020	10.03.2020
4	<i>Vaisākha</i>	08.03.2019	21.03.2019	26.03.2020	08.04.2020
5	<i>Jyeṣṭha</i>	07.04.2019	20.04.2019	24.04.2020	08.05.2020
6a	<i>Āṣāḍha (Ādhika)</i>	06.05.2019	19.05.2019	-	-
6b	<i>Āṣāḍha</i>	05.06.2019	18.06.2019	24.05.2020	06.06.2020
7	<i>Śrāvāṇa</i>	04.07.2019	17.07.2019	22.06.2020	05.07.2020
8	<i>Bhādrapada</i>	02.08.2019	16.08.2019	22.07.2020	04.08.2020
9	<i>Aśvin</i>	01.09.2019	14.09.2019	20.08.2020	02.09.2020
10	<i>Kārtika</i>	30.09.2019	14.10.2019	19.09.2020	02.10.2020
11	<i>Mārgaśīrṣa</i>	29.10.2019	13.11.2019	18.10.2020	01.11.2020
12a	<i>Pauṣa</i>	28.11.2019	12.12.2019	16.11.2020	01.12.2020
12b	<i>Pauṣa (Ādhika)</i>	-	-	-	-

Table C.2
Vedic Calendars of 2017-2020

No.	Month	First Day	F.M. Day	First Day	F.M. Day
Ujjain		2021 (MY52, Y15, 5)		2022 (MY52, Y16, 1)	
1	<i>Māgha</i>	16.12.2020	30.12.2020	04.01.2022	18.01.2022
2	<i>Phālguna</i>	14.01.2021	29.01.2021	02.02.2022	17.02.2022
3	<i>Caitra</i>	13.02.2021	28.02.2021	04.03.2022	19.03.2022
4	<i>Vaisākha</i>	15.03.2021	29.03.2021	02.04.2022	17.04.2022
5	<i>Jyeṣṭha</i>	13.04.2021	27.04.2021	02.05.2022	16.05.2022
6a	<i>Āṣāḍha (Ādhika)</i>	-	-	-	-
6b	<i>Āṣāḍha</i>	13.05.2021	27.05.2021	01.06.2022	15.06.2022
7	<i>Śrāvāṇa</i>	12.06.2021	25.06.2021	30.06.2022	14.07.2022
8	<i>Bhādrapada</i>	11.07.2021	24.07.2021	30.07.2022	12.08.2022
9	<i>Aśvin</i>	10.08.2021	23.08.2021	29.08.2022	11.09.2022
10	<i>Kārtika</i>	08.09.2021	21.09.2021	27.09.2022	10.10.2022
11	<i>Mārgaśīrṣa</i>	08.10.2021	21.10.2021	27.10.2022	09.11.2022
12a	<i>Pauṣa</i>	06.11.2021	20.11.2021	25.11.2022	08.12.2022
12b	<i>Pauṣa (Ādhika)</i>	06.12.2021	19.12.2021	-	-
Ujjain		2023 (MY52, Y16, 2)		2024 (MY52, Y16, 3)	
1	<i>Māgha</i>	25.12.2022	07.01.2023	14.12.2023	27.12.2023
2	<i>Phālguna</i>	23.01.2023	06.02.2023	13.01.2024	26.01.2024
3	<i>Caitra</i>	21.02.2023	08.03.2023	11.02.2024	25.02.2024
4	<i>Vaisākha</i>	23.03.2023	06.04.2023	12.03.2024	25.03.2024
5	<i>Jyeṣṭha</i>	21.04.2023	06.05.2023	10.04.2024	24.04.2024
6a	<i>Āṣāḍha (Ādhika)</i>	-	-	09.05.2024	24.05.2024
6b	<i>Āṣāḍha</i>	21.05.2023	04.06.2023	08.06.2024	22.06.2024
7	<i>Śrāvāṇa</i>	19.06.2023	04.07.2023	07.07.2024	22.07.2024
8	<i>Bhādrapada</i>	19.07.2023	02.08.2023	06.08.2024	20.08.2024
9	<i>Aśvin</i>	18.08.2023	31.08.2023	04.09.2024	18.09.2024
10	<i>Kārtika</i>	16.09.2023	30.09.2023	04.10.2024	18.10.2024
11	<i>Mārgaśīrṣa</i>	16.10.2023	29.10.2023	03.11.2024	16.11.2024
12a	<i>Pauṣa</i>	15.11.2023	28.11.2023	02.12.2024	16.12.2024
12b	<i>Pauṣa (Ādhika)</i>	-	-	-	-

Table C.3
Vedic Calendars of 2021-2024

No.	Month	First Day	F.M. Day	First Day	F.M. Day
Ujjain		2025 (MY52, Y16, 4)		2026 (MY52, Y16, 5)	
1	<i>Māgha</i>	01.01.2025	14.01.2025	21.12.2025	04.01.2026
2	<i>Phālguna</i>	31.01.2025	13.02.2025	20.01.2026	02.02.2026
3	<i>Caitra</i>	01.03.2025	14.03.2025	19.02.2026	04.03.2026
4	<i>Vaisākha</i>	31.03.2025	13.04.2025	20.03.2026	02.04.2026
5	<i>Jyeṣṭha</i>	29.04.2025	13.05.2025	19.04.2026	02.05.2026
6a	<i>Āṣāḍha (Ādhika)</i>	-	-	-	-
6b	<i>Āṣāḍha</i>	28.05.2025	12.06.2025	18.05.2026	01.06.2026
7	<i>Śrāvāṇa</i>	27.06.2025	11.07.2025	16.06.2026	30.06.2026
8	<i>Bhādrapada</i>	26.07.2025	10.08.2025	16.07.2026	30.07.2026
9	<i>Aśvin</i>	24.08.2025	08.09.2025	14.08.2026	28.08.2026
10	<i>Kārtika</i>	23.09.2025	07.10.2025	12.09.2026	27.09.2026
11	<i>Mārgaśīrṣa</i>	23.10.2025	06.11.2025	12.10.2026	26.10.2026
12a	<i>Pauṣa</i>	22.11.2025	05.12.2025	11.11.2026	25.11.2026
12b	<i>Pauṣa (Ādhika)</i>	-	-	10.12.2026	24.12.2026
Ujjain		2027 (MY52, Y17, 1)		2028 (MY52, Y17, 2)	
1	<i>Māgha</i>	09.01.2027	23.01.2027	29.12.2027	12.01.2028
2	<i>Phālguna</i>	08.02.2027	21.02.2027	28.01.2028	11.02.2028
3	<i>Caitra</i>	10.03.2027	23.03.2027	27.02.2028	11.03.2028
4	<i>Vaisākha</i>	08.04.2027	21.04.2027	27.03.2028	10.04.2028
5	<i>Jyeṣṭha</i>	08.05.2027	21.05.2027	26.04.2028	09.05.2028
6a	<i>Āṣāḍha (Ādhika)</i>	-	-	-	-
6b	<i>Āṣāḍha</i>	06.06.2027	19.06.2027	26.05.2028	07.06.2028
7	<i>Śrāvāṇa</i>	05.07.2027	19.07.2027	24.06.2028	07.07.2028
8	<i>Bhādrapada</i>	04.08.2027	18.08.2027	23.07.2028	06.08.2028
9	<i>Aśvin</i>	02.09.2027	16.09.2027	22.08.2028	04.09.2028
10	<i>Kārtika</i>	01.10.2027	16.10.2027	20.09.2028	04.10.2028
11	<i>Mārgaśīrṣa</i>	31.10.2027	14.11.2027	19.10.2028	03.11.2028
12a	<i>Pauṣa</i>	29.11.2027	14.12.2027	18.11.2028	02.12.2028
12b	<i>Pauṣa (Ādhika)</i>	-	-	-	-

Table C.4
Vedic Calendars of 2025-2028

Year	Śīśira (Winters)	Vasantā (Spring)	Grīṣma (Summers)	Vṛṣṭā (Rains)	Śarada (Autumn)	Hemanta (Pre-Winters)
2017	Dec 22 21.12.2016 16:14	Feb 19 18.02.2017 17:01	Apr 20 20.04.2017 02:57	Jun 21 21.06.2017 09:54	Aug 23 23.08.2017 03:50	Oct 23 23.10.2017 10:57
2018	Dec 22 21.12.2017 21:58	Feb 19 18.02.2018 22:48	Apr 20 20.04.2018 08:43	Jun 22 21.06.2018 15:37	Aug 23 23.08.2018 09:39	Oct 24 23.10.2018 16:52
2019	Dec 22 22.12.2018 03:53	Feb 19 19.02.2019 04:34	Apr 21 20.04.2019 14:25	Jun 22 21.06.2019 21:24	Aug 24 23.08.2019 15:32	Oct 24 23.10.2019 22:50
2020	Dec 22 22.12.2019 09:49	Feb 19 19.02.2020 10:27	Apr 20 19.04.2020 20:15	Jun 21 21.06.2020 03:14	Aug 23 22.08.2020 21:15	Oct 23 23.10.2020 04:29
2021	Dec 22 21.12.2020 15:32	Feb 19 18.02.2021 16:14	Apr 20 20.04.2021 02:03	Jun 21 21.06.2021 09:02	Aug 23 23.08.2021 03:05	Oct 23 23.10.2021 10:21
2022	Dec 22 21.12.2021 21:29	Feb 19 18.02.2022 22:13	Apr 20 20.04.2022 07:54	Jun 22 21.06.2022 14:44	Aug 23 23.08.2022 08:46	Oct 24 23.10.2022 16:06
2023	Dec 22 22.12.2022 03:18	Feb 19 19.02.2023 04:04	Apr 21 20.04.2023 13:43	Jun 22 21.06.2023 20:28	Aug 24 23.08.2023 14:31	Oct 24 23.10.2023 21:51
2024	Dec 22 22.12.2023 08:57	Feb 19 19.02.2024 09:43	Apr 20 19.04.2024 19:30	Jun 21 21.06.2024 02:21	Aug 23 22.08.2024 20:25	Oct 23 23.10.2024 03:45
2025	Dec 22 21.12.2024 14:50	Feb 19 18.02.2025 15:36	Apr 20 20.04.2025 01:26	Jun 21 21.06.2025 08:12	Aug 23 23.08.2025 02:04	Oct 23 23.10.2025 09:21
2026	Dec 22 21.12.2025 20:33	Feb 19 18.02.2026 21:22	Apr 20 20.04.2026 07:09	Jun 22 21.06.2026 13:54	Aug 23 23.08.2026 07:49	Oct 24 23.10.2026 15:08
2027	Dec 22 22.12.2026 02:20	Feb 19 19.02.2027 03:03	Apr 21 20.04.2027 12:47	Jun 22 21.06.2027 19:41	Aug 24 23.08.2027 13:44	Oct 24 23.10.2027 21:03
2028	Dec 22 22.12.2027 08:12	Feb 19 19.02.2028 08:56	Apr 20 19.04.2028 18:39	Jun 21 21.06.2028 01:32	Aug 23 22.08.2028 19:31	Oct 23 23.10.2028 02:43

Table C.5
Start Dates of Six Seasons (*Rtu*)

If a season start point falls before the local midday at Ujjain, the same day is the first day of that season, else it's the next day. For example, *Hemanta* of 2017 is given to start on “23.10.2017 10:57”. As this timepoint falls before the local noon (12:11:05) of this day at Ujjain, the first *Hemanta* day will be 23.10.2017 (Oct 23, 2017) itself. Hence, Oct 23, 2017 is also the first day of the *Nava Āgrayaṇa* (the first 9 days of *Hemanta* reserved for fire worship of ancestors; mentioned in *Yajurveda* to be linked with *Hemanta Rtu*). It can be noted from the calendar that it falls on *Mārgaśīrṣa* S03.

The Vedic dates of some popular festivals can be read against the calendars given earlier; for next 3 years, these dates are as follows:

No	Festival Name / Date	2017	2018	2019
1	New Year (<i>Māgha</i> S01)	30.12.2016	19.12.2017	09.12.2018
2	<i>Bhīma Trayodaśī</i> (<i>Māgha</i> S13)	11.01.2017	31.12.2017	21.12.2018
3	Dusshera (<i>Māgha Amāvasyā</i>)	28.01.2017	17.01.2018	06.01.2019
4	<i>Holi / Arjuna Pūrṇimā</i> (<i>Phālguna Pūrṇimā</i>)	11.02.2017	01.02.2018	21.01.2019
5	<i>Ayodhyā Saptamī</i> (<i>Caitra</i> S07)	06.03.2017	23.02.2018	12.02.2019
6	<i>Rāma Navamī</i> (<i>Caitra</i> S09)	08.03.2017	25.02.2018	14.02.2019
7	<i>Buddha Pūrṇimā</i> (<i>Vaisākha Pūrṇimā</i>)	11.04.2017	01.04.2018	21.03.2019
8	<i>Yudhiṣṭhīra Pūrṇimā</i> (<i>Jyeṣṭha Pūrṇimā</i>)	11.05.2017	30.04.2018	20.04.2019
9	<i>Kṛṣṇa Aṣṭamī</i> (<i>Śrāvaṇa</i> K08)	17.07.2017	06.07.2018	25.07.2019
10	<i>Divālī / Goddess Worship</i> (<i>Kārtika Amāvasyā</i>)	20.10.2017	09.10.2018	28.10.2019
11	<i>Nava Āgrayaṇa</i> (Starts on First day of <i>Hemanta Rtu</i>)	23.10.2017 +8	24.10.2018 +8	24.10.2019 +8
12	<i>Duryodhana Pañcadaśī</i> (~ <i>Mārgaśīrṣa Amāvasyā</i>) (End of War, Actually K15)	19.11.2017	08.11.2018	27.11.2019

Table C.6
Vedic Calendar Dates of Important Festivals

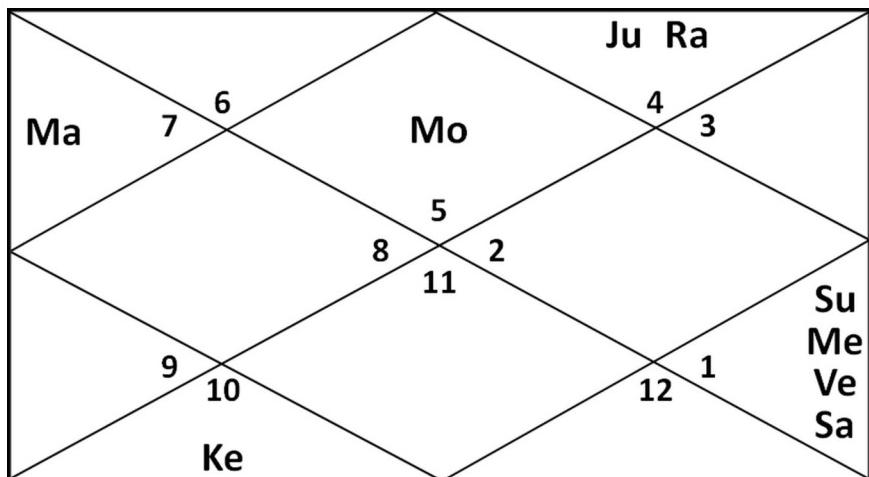
Appendix D

Important Horoscopes (Rāśi)

1. Rāma

Apr 07, 1331 BCE (Sat) 12:05:21 IST (+0530 GMT) Ayodhya, India (82E12, 26N48) Sunrise: 05:57:47, Sunset: 18:12:54	Caitra Śukla Navami (S09) Pūrvā Phālgunī Nakṣatra Q4 Vedic Ayanāṁśa
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Main Rāśi Chart (D1)



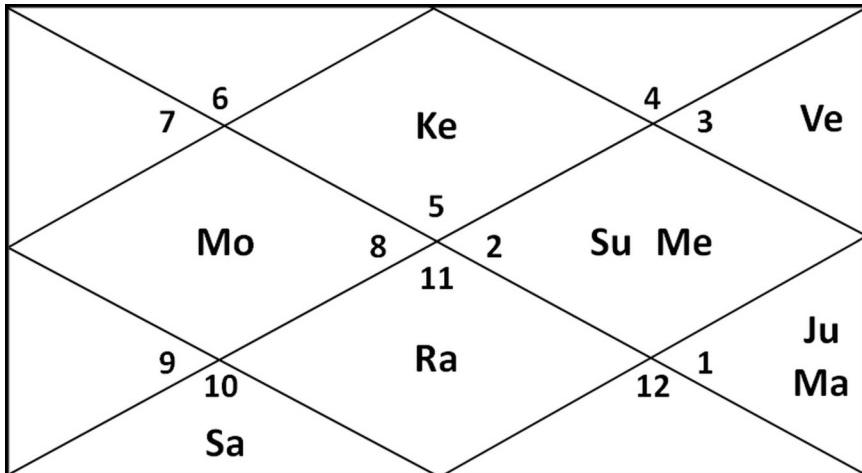
Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Leo 06°15'23"	Magh 09.590° Q3	-
Sun	Su	Ari 25°35'43"	Krit 02.262° Q1	AK
Moon	Mo	Leo 22°37'32"	PPha 12.626° Q4	BK
Mars	Ma	Lib 24°59'34"	vish 08.326° Q3	AmK
Mercury	Me	Ari 06°07'47"	Ashv 09.463° Q3	DK
Venus	Ve	Ari 18°22'48"	Bhar 08.380° Q3	MK
Jupiter	Ju	Can 18°14'52"	Ashl 04.914° Q2	PK
Saturn	Sa	Ari 09°33'29"	Ashv 12.892° Q4	GK
Rahu	Ra	Can 19°06'54"	Ashl 05.782° Q2	-
Ketu	Ke	Cap 19°06'54"	Shra 12.448° Q4	-

* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

2. *Yudhiṣṭhīra*

May 03, 896 BCE (Tue) 12:09:31 IST (+0530 GMT) Kalluwala, India (78E37, 29N33) Sunrise: 05:36:06, Sunset: 18:42:57	Jyeṣṭha Pūrṇimā (S15) Jyeṣṭhā Nakṣatra Q4 Vedic Ayanāṁśa
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Main Rāśi Chart (D1)



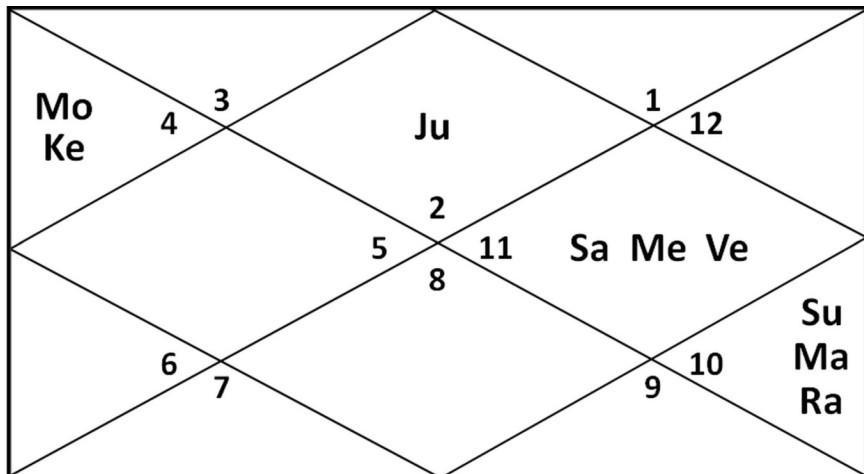
Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Leo 24°01'50"	UPha 00.697° Q1	-
Sun	Su	Tau 17°59'15"	Rohi 11.321° Q4	BK
Moon	Mo	Sco 23°32'08"	Jyes 10.202° Q4	AK
Mars	Ma	Ari 05°08'35"	Ashv 08.476° Q3	GK
Mercury	Me	Tau 11°15'11"	Rohi 04.586° Q2	MK
Venus	Ve	Gem 02°27'12"	Mrig 12.453° Q4	DK
Jupiter	Ju	Ari 08°58'53"	Ashv 12.315° Q4	PK
Saturn	Sa	Cap 18°02'32"	Shra 11.376° Q4	AmK
Rahu	Ra	Aqu 28°14'04"	PBha 11.568° Q4	-
Ketu	Ke	Leo 28°14'04"	UPha 04.901° Q2	-

* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

3. *Bhīma*

Jan 11, 894 BCE (Thu) 12:26:21 IST (+0530 GMT) Kalluwala, India (78E37, 29N33) Sunrise: 07:17:52, Sunset: 17:34:49	Māgha Śukla Trayodaśī (S13) Puṣya Nakṣatra Q3 Vedic Ayanāṁśa
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Main Rāśi Chart (D1)

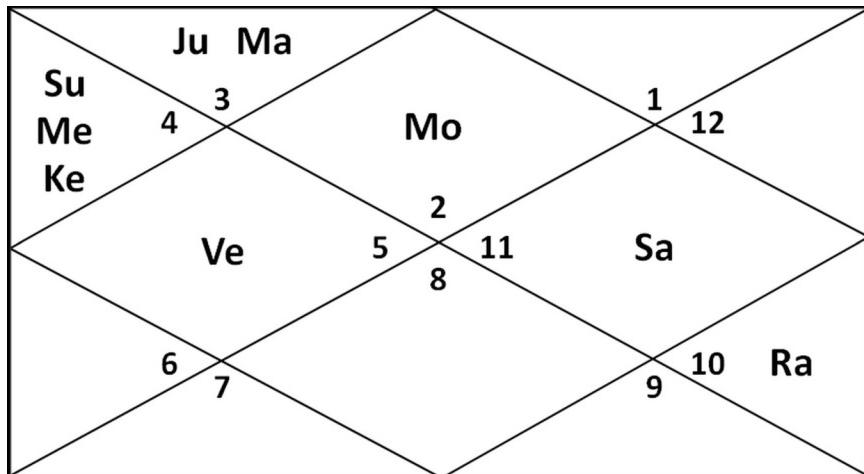


Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Tau 05°17'07"	Krit 11.952° Q4	-
Sun	Su	Cap 27°54'10"	Dhan 07.903° Q3	AK
Moon	Mo	Can 08°04'14"	Push 08.070° Q3	GK
Mars	Ma	Cap 24°51'41"	Dhan 04.861° Q2	AmK
Mercury	Me	Aqu 15°40'05"	Shat 12.335° Q4	MK
Venus	Ve	Aqu 20°47'28"	PBha 04.124° Q2	BK
Jupiter	Ju	Tau 15°33'48"	Rohi 08.897° Q3	PK
Saturn	Sa	Aqu 02°01'12"	Dhan 12.020° Q4	DK
Rahu	Ra	Cap 24°56'49"	Dhan 04.947° Q2	-
Ketu	Ke	Can 24°56'49"	Ashl 11.614° Q4	-
* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded				

4. Kṛṣṇa

Jul 18, 894 BCE (Wed) 00:18:05 IST (+0530 GMT) Mathura, India (77E40, 27N29) Sunrise: 05:22:42, Sunset: 19:13:24	Śrāvāna Kṛṣṇa Aṣṭamī (K08) Rohiṇī Nakṣatra Q2 Vedic Ayanāṁśa
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Main Rāśi Chart (D1)

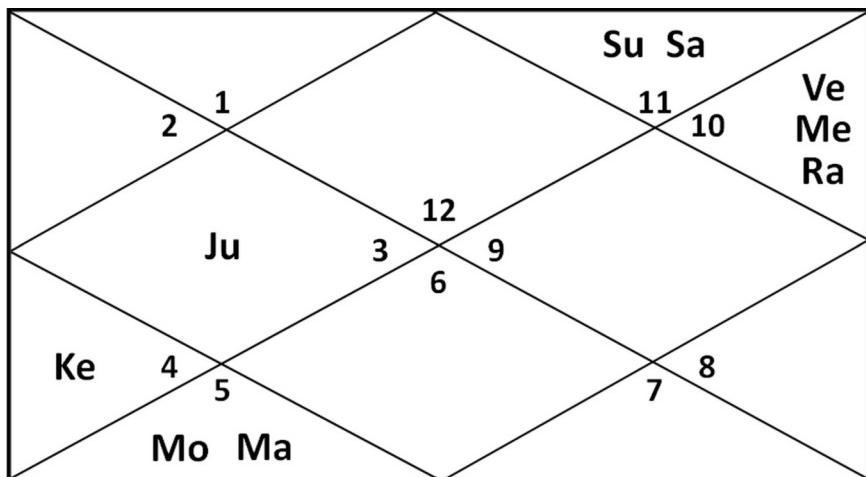


Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Tau 07°14'49"	Rohi 00.577° Q1	-
Sun	Su	Can 29°34'38"	Magh 02.911° Q1	AK
Moon	Mo	Tau 12°30'59"	Rohi 05.850° Q2	PK
Mars	Ma	Gem 11°17'22"	Ardr 07.956° Q3	GK
Mercury	Me	Can 25°27'20"	Ashl 12.122° Q4	AmK
Venus	Ve	Leo 13°42'51"	PPha 03.714° Q2	MK
Jupiter	Ju	Gem 19°14'20"	Puna 02.572° Q1	BK
Saturn	Sa	Aqu 09°35'09"	Shat 06.252° Q2	DK
Rahu	Ra	Cap 15°51'23"	Shra 09.190° Q3	-
Ketu	Ke	Can 15°51'23"	Ashl 02.523° Q1	-

* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

5. Arjuna

Feb 01, 893 BCE (Fri) 08:20:00 IST (+0530 GMT) Kalluwala, India (78E37, 29N33) Sunrise: 07:15:03, Sunset: 17:50:43	<i>Phālguna Pūrṇimā</i> (S15) <i>Uttarā Phalgunī Nakṣatra</i> Q1 (Start) Vedic <i>Ayanāṁśa</i>
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Main *Rāśi* Chart (D1)

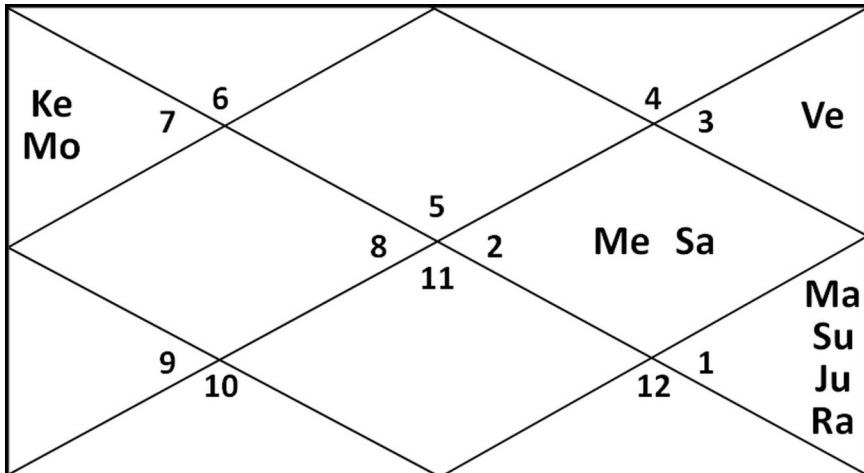
Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Pis 06°58'21"	Uṣha 06.973° Q3	-
Sun	Su	Aqu 18°33'27"	Pṛbhā 01.891° Q1	PK
Moon	Mo	Leo 23°20'10"	Uṛpha 00.003° Q1	AK
Mars	Ma	Leo 04°28'01"	Magh 07.800° Q3	DK
Mercury	Me	Cap 22°22'38"	Dhan 02.377° Q1	AmK
Venus	Ve	Cap 21°11'09"	Dhan 01.186° Q1	BK
Jupiter	Ju	Gem 18°56'55"	Pūna 02.282° Q1	MK
Saturn	Sa	Aqu 15°22'24"	Śat 12.040° Q4	GK
Rahu	Ra	Cap 06°02'14"	Uṛṣha 12.704° Q4	-
Ketu	Ke	Can 06°02'14"	Push 06.037° Q2	-

* 07 *Cara Kārakā* (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

6. Buddha

Apr 12, 563 BCE (Fri) 12:12:51 IST (+0530 GMT) Lumbini, Nepal (83E30, 27N41) Sunrise: 05:56:19, Sunset: 18:29:23	Vaisākha Pūrṇimā (S15) Viśākhā Nakṣatra Q4 Vedic Ayanāṁśa
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Main Rāśi Chart (D1)



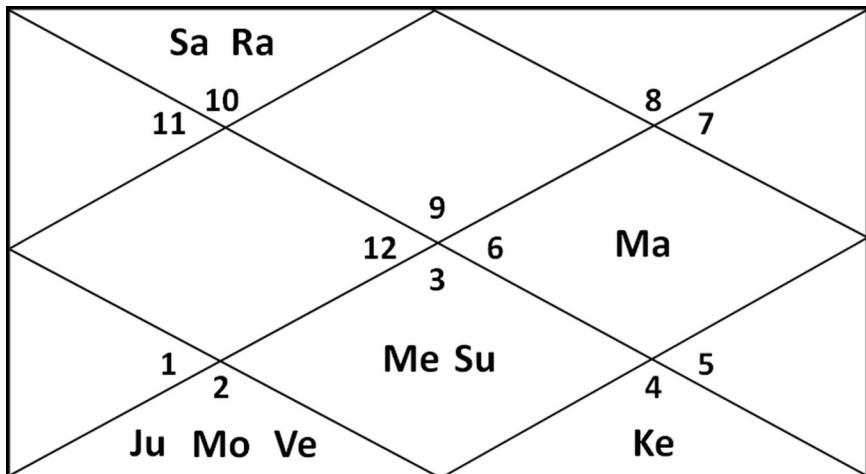
Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Leo 04°20'42"	Magh 07.678° Q3	-
Sun	Su	Ari 25°34'49"	Krit 02.247° Q1	BK
Moon	Mo	Lib 29°39'32"	Vish 12.992° Q4	AK
Mars	Ma	Ari 00°18'09"	Ashv 03.636° Q2	DK
Mercury	Me	Tau 10°14'13"	Rohi 03.570° Q2	PK
Venus	Ve	Gem 10°26'56"	Ardr 07.116° Q3	MK
Jupiter	Ju	Ari 26°57'13"	Krit 03.620° Q2	AmK
Saturn	Sa	Tau 06°18'39"	Krit 12.977° Q4	GK
Rahu	Ra	Ari 04°17'30"	Ashv 07.625° Q3	-
Ketu	Ke	Lib 04°17'30"	Svat 00.958° Q1	-

* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

7. Harṣa Vardhana

May 30, 577 CE (Sun)	Jyeṣṭha Kṛṣṇa Dvādaśī (K12)
19:16:07 IST (+0530 GMT)	Kṛttikā Nakṣatra Q3
Thanesar, India (76E50, 29N59)	Vedic Ayanāṁśa
Sunrise: 05:18:31, Sunset: 19:16:07	

Main Rāśi Chart (D1)



Entity	Sign	12-Sign Zodiac	Nakṣatra Zodiac	Kāraka*
Ascendent	As	Sag 05°57'22"	Mula 09.289° Q3	-
Sun	Su	Gem 04°59'37"	Ardr 01.660° Q1	PK
Moon	Mo	Tau 01°56'18"	Krit 08.605° Q3	DK
Mars	Ma	vir 07°48'51"	Hast 01.148° Q1	MK
Mercury	Me	Gem 04°07'31"	Ardr 00.792° Q1	GK
Venus	Ve	Tau 19°54'26"	Rohi 13.241° Q4	AK
Jupiter	Ju	Tau 14°06'32"	Rohi 07.442° Q3	AmK
Saturn	Sa	Cap 08°48'41"	Shra 02.145° Q1	BK
Rahu	Ra	Cap 02°59'39"	UAsh 09.661° Q3	-
Ketu	Ke	Can 02°59'39"	Push 02.994° Q1	-

* 07 Cara Kārakā (AK, AmK, BK, MK, PK, GK, DK) – Ra/Ke Excluded

Appendix E

The Indus Script

The Indus script, the script used by the Indus Valley Civilization, is the most puzzling ancient script that remain undeciphered even today, largely because it's available only as 4-7 letter words found engraved on the seals excavated from the IVC sites. No long text in Indus is available which may have been helpful in decoding it. Consequentially, any efforts at decoding Indus require huge time and effort due to these bounds and limited resources. The script is only a way of writing down the language one speaks. What language these Indus tribes, of the *Sapta Saindhva* region, could have spoken other than a language similar to the ancient Vedic *Sanskrt* that was spoken by their Vedic Indian ancestors?

No	IVC Period	Contemporaneous Kings
1	Early-Harappan Period (3300-2800 BCE)	
1.1	Phase 1 (3300-2800 BCE) [Ravi Phase / Hakra Ware]	<i>Svayambhuva Manu</i> (28A, 3391 BCE)
		<i>Agnidhra</i> (30A, 3333 BCE) (b)
		<i>Uttama, Tāmasa, Raivata</i> (3 Manu)
		<i>Nābhi</i> (31A, 3304 BCE)
1.2	Phase 2 (2800-2600 BCE) [Kot Diji Phase, Nausharo I, Mehrgarh VII]	<i>Vaivasvat Manu</i> (48A/C, 2811 BCE)
2	Mature-Harappan Period (2600-1900 BCE)	
2.1	Phase 3A (2600-2450 BCE)	<i>Puru</i> (54E, 2637 BCE) (b) <i>Yadu, Turvasu, Druhyu, Anu</i>
2.2	Phase 3B (2450-2200 BCE)	-
2.3	Phase 3C (2200-1900 BCE)	<i>Māndhātā</i> (67C, 2260 BCE) <i>Bharata</i> (69E, 2202 BCE)
3	Late-Harappan Period (1900-1300 BCE)	
3.1	Phase 4 (1900-1700 BCE)	<i>Sagara</i> (79C, 1912 BCE)
3.2	Phase 5 (1700-1300 BCE)	<i>Hasti</i> (88P, 1651 BCE)
3	Post-Harappan Period (1300-300 BCE)	
	Iron Age	<i>Divodāsa</i> (99P, 1332 BCE) <i>Rāma</i> (100C, 1303 BCE)

Table E.1
Indus Valley Civilization (IVC) Periods

Most people think that Indus script is logographic in nature (like Chinese, where words or phrases are represented by symbols called Pictograms/Logograms). While this may be partially true, I feel most certain that the Indus script largely represents a language, with proper consonants and vowels. This has also been proven by computer analysis. Now, I am no Indus script expert but, due to the known historical timeline of IVC sites, as established in Chapter 2, and their origin, I have briefly evaluated the probability of the Indus script representing a language similar to the ancient Vedic *Samskr̥t*. The gold standard on Indus script is “*The Indus Script, Texts, Concordance and Tables, I. Mahadevan (1977)*” wherein all its various symbols can be found.



Figure E.1
An Indus Seal

If the language of Indus script be similar to ancient Vedic *Samskr̥t*, the letter frequencies should be similar and frequency analysis can be deployed as the decoding method. As an example, these full-letter frequencies of ancient *Vedic Samskr̥t*, as extracted from all the 4-Letter words of the *R̥gveda*, are shown below:

Word	Full Letters					Pos. 1		Pos. 2		Pos. 3		Pos. 4	
अग्निमीठे	अ	न	म	ळ		व	1521	र	1525	म	1685	त	2174
पुरोहितं	प	र	ह	त		स	1259	व	1525	य	1528	य	1451
दिवेदिवे	द	व	द	व		अ	1015	य	973	व	1439	न	1437
इद्वेषु	इ	द	व	ष		र	909	त	971	र	1278	व	1036
अग्निर्होता	अ	न	ह	त		य	908	म	971	त	931	र	972
कविक्रतुः	क	व	र	त		प	804	न	698	द	662	स	790
देवेभिरा	द	व	भ	र		म	617	द	687	न	602	म	570
करिष्यसि	क	र	य	स		द	494	ह	455	ष	384	ष	400
वर्धमानं	व	र्ध	म	न		न	464	ष	451	प	349	ण	396
सूनवेऽग्ने	स	न	व	न		त	442	ध	358	स	335	ह	291
सूपायनो	स	प	य	न		श	361	ज	354	ज	256	थ	255
दर्शतेर्मे	द	श	त	म		क	310	प	354	ध	255	भ	250

Table E.2
Full-Letter Frequencies of Vedic *Samskr̥t* (4 Letter Words)

In extracting these frequencies, half-letters (letters without vowels) have been ignored and only full letters have been considered. It can be noticed that for all such 4-Letter words the full-letter of व (Va) occurs 1521 times at 1st position, 1525 times at 2nd position, 1439 times at 3rd position and 1036 times at 4th position. So, the full-letter व (Va) occurs 5521 times in all 4-Letter words. Similarly, this exercise is also done for all 3-Letter and 5-Letter words of *R̥gveda* and all the frequencies of different full-letters added to get a list of near-total frequencies of full-letters.

These full-letter frequencies of Indus Script, as available from the works of Mahadevan and Parpola, and that of Vedic *Samskr̥t* are shown in the following table. Here, the full-letter व (Va) of Vedic *Samskr̥t* has the maximum frequency and it may be taken to be equal to the Jar-like Indus letter listed at No. 1. But all the other letters can't be taken to have a one-to-one correspondence:

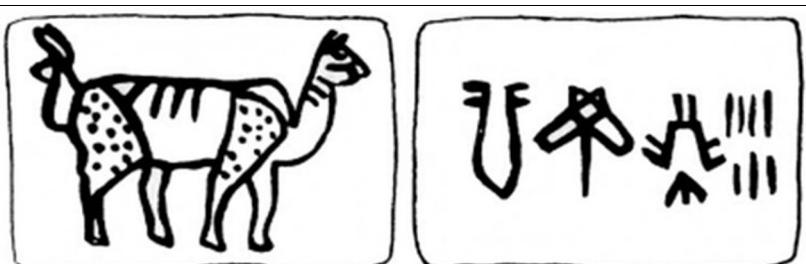
No.	Indus	Freq.	Vedic <i>Samskr̥t</i>		Freq.
			<i>Brāhmaṇī</i>	<i>Nāgarī</i>	
1	⇅	1,395	ঁ	ব	13,929
2	॥	649	ঁ	য	12,779
3	ঔ	381	ନ୍ମ	ତ	12,123
4	❖	376	ର୍ମ	ର	11,922
5		365	ମ୍ବ	ମ	9,413
6	☶	355	ନ୍ଦ୍ର	ନ	8,137
7	ଉ	323	ସ୍ତ୍ର	ସ	7,268
8	☰	314	ଦ୍ଵୀ	ଦ	5,289
9	ঔ	279	ପ୍ରା	ପ	4,368
10	ঔ	240	ଷ୍ଟର୍	ଷ	3,456
11	ଉ	236	ହ୍ରା	ହ	3,107
12	↑	227	ଭ୍ରା	ଭ	2,839
13	ঔ	216	ଜ୍ଞା	ଜ	2,758
14	ঔ	212	ଧ୍ରା	ଧ	2,611
15	田	207	ଅ୍ରା	ଅ	2,501
16	❖	195	ଚ୍ରା	ଚ	2,423
17	リ	193	ଶ୍ରା	ଶ	2,380
18	ঔ	188	ଣ୍ଠା	ଣ	2,106
19	ઉ	177	କ୍ରା	କ	2,091
20	ঔ	170	ଗ୍ରା	ଗ	1,505

Table E.3

Letter Frequencies of Indus Script and Vedic *Samskr̥t*

With only this much understanding, when we look through the Indus corpus, we find a copper tablet from Mohan-Jo-Daro the text of which may mean to indicate the *Samskr̥t* phrase *Sapta Saindhava* (୭ ସୈନ୍ଧବ), or its plural the *Sapta Saindhavā* (୭ ସୈନ୍ଧବା).

Now, if this be true, we would have known at least 3 and a half letters of the Indus script, that of *Va*, *Dha*, *Sa* and *Na*:

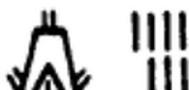


Text is written Right to Left (from the side the animal is facing):	व ध सैन् 7
String Reversed for Reading:	7 सैन् ध व
Meaning:	7 सैन्धव (Sapta Sindhva)

Table E.4
Copper Tablet of Mohan-Jo-Daro

Now compare this with report of Iravatham Mahadevan¹⁹⁵:

'SEVEN CITIES'



1.44 *The interpretation of a pair of Indus signs as SEVEN CITIES has gained wide acceptance from scholars.* Waddel (1925) was the first scholar to identify the pair with the Sumerian equivalents *imina bara* and to suggest the meaning 'Heavenly House' (by allotting the SEVEN sign, not the numeral but an ideographic value). He was followed by F.W. Thomas (1932) who pointed out that the Indus ideogram in question is "too similar to the Sumerian sign for CITY WALL and at the same time too complex to be otherwise than identical with it."

¹⁹⁵ Presidential Address: What Do We Know About the Indus Script? Neti neti ('Not this nor that'), Iravatham Mahadevan, Proceedings of the Indian History Congress Vol. 49 (1988), pp. 599-628, p.614

It can be noticed that our lingual meaning of the first two Indus signs of the Copper Tablet of Mohan-Jo-Daro is nearly the same as the ideographic meaning attributed to them in Sumerian.

So, there is a very good probability that the Indus script largely represented a language quite similar to the ancient Vedic *Śaṃskṛt*; perhaps even the Sumerian ideographic script derived from the Indus script. The experts of Indus script must evaluate these probabilities. Perhaps in the near future, we would soon be looking at a solution of Indus Script¹⁹⁶.

¹⁹⁶ I have also glanced through the work of Sue Sullivan (2016) on the Indus script who claims to have cracked the code. She seems to have taken the Indus script signs as Ideograms while allotting them pure *Śaṃskṛt* meanings. She should have known better; *Śaṃskṛt* is a highly evolved language of sounds with no place for Ideograms. Even while its script was *Brāhmī* in ancient times, it was still a language with clearly identifiable consonants and vowels. So, it appears that the Indus script still remains to be undeciphered.

[End of Book]

About the Book

This book establishes the Vedic Science of Time, the rules of which are revealed for the very first time, and also establishes the true timeline of World History by examining and corroborating the ancient genealogies with known natural phenomena such as Solar & Lunar Eclipses and the Heliacal Risings of Venus and Sirius. The true timeline of five most ancient civilizations on Earth, that of Vedic India (~3400 BCE), the Indus Valley (~3300 BCE), Egypt (~3100 BCE), Mesopotamia (~2580 BCE) and the Biblical Hebrews (~1740 BCE), has thus been established. It's also established that almost all these civilizations used the Vedic Calendar and have their ultimate origin in the Vedic Indian civilization. The dates of two great historical epics of India, that of Ramayana (1299 BCE) and Mahabharata (827 BCE), have also been established once and for all. Like a ray of light removes the darkness of ages, this book clears the reigning confusion on ancient history.

About the Author



Sunil Sheoran is an alumnus of the prestigious Indian Institute of Technology at Bombay (Mumbai) and holds a degree in Chemical Engineering. Having said goodbye to his corporate career, he is now an Internet Entrepreneur with many diverse interests and resides in Haryana, India.

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